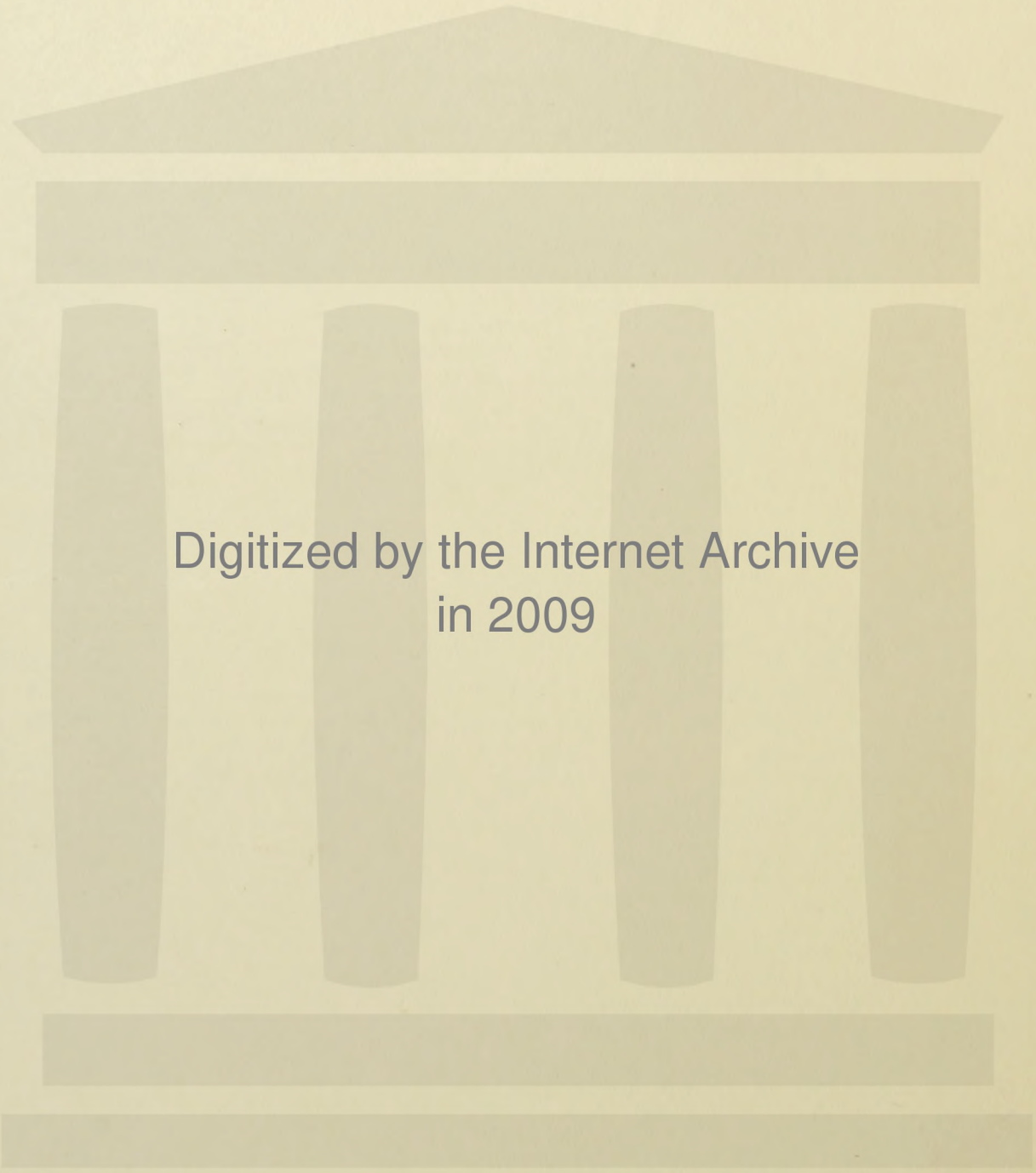
REGIONAL PLANNING

PART I - PACIFIC NORTHWEST

MAY - 1936

NATIONAL RESOURCES COMMITTEE



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Abel Wolman
June 1, 1936

REGIONAL PLANNING

PART I—PACIFIC NORTHWEST

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NATIONAL RESOURCES COMMITTEE

MAY 1936

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NATIONAL RESOURCES COMMITTEE

INTERIOR BUILDING

WASHINGTON

April 21, 1936.

The PRESIDENT,
The White House.

MY DEAR MR. PRESIDENT:

The National Resources Committee has secured from various planning agencies dealing with regional or interstate problems a series of reports which illustrate the continuing planning work discussed in our general report on "Regional factors in national planning and development."

We have the honor to transmit herewith our findings and recommendations concerning the attached report on the Columbia Basin submitted, in accordance with your request, by the Pacific Northwest Regional Planning Commission. This volume constitutes "Part I—Pacific Northwest" of a proposed series of reports on regional planning. It deals with immediate and urgent problems in the Columbia Basin and particularly with the policies and organization which should be provided for planning, construction, and operation of certain public works in that area.

In view of the fact that Bonneville power will be available within 18 months, the Committee wishes to emphasize the imperative need for legislation in the present session of Congress to effectuate the foregoing principles set forth in the report. The establishment of a power agency is needed to begin without delay the important task of exploring the alternative possibilities of rate structure in relation to the developing industrial and economic problems of the Pacific Northwest.

The members of the Committee have not all had an opportunity to give full consideration to all of the points raised in the foreword of the report. However, they endorse the recommendations in principle, and desire to indicate to you their belief in the great importance and value of this study.

Sincerely yours,

HAROLD L. ICKES
Secretary of the Interior, Chairman

(Secretary Dern was out of the city.)
Secretary of War.

HENRY A. WALLACE,
Secretary of Agriculture.

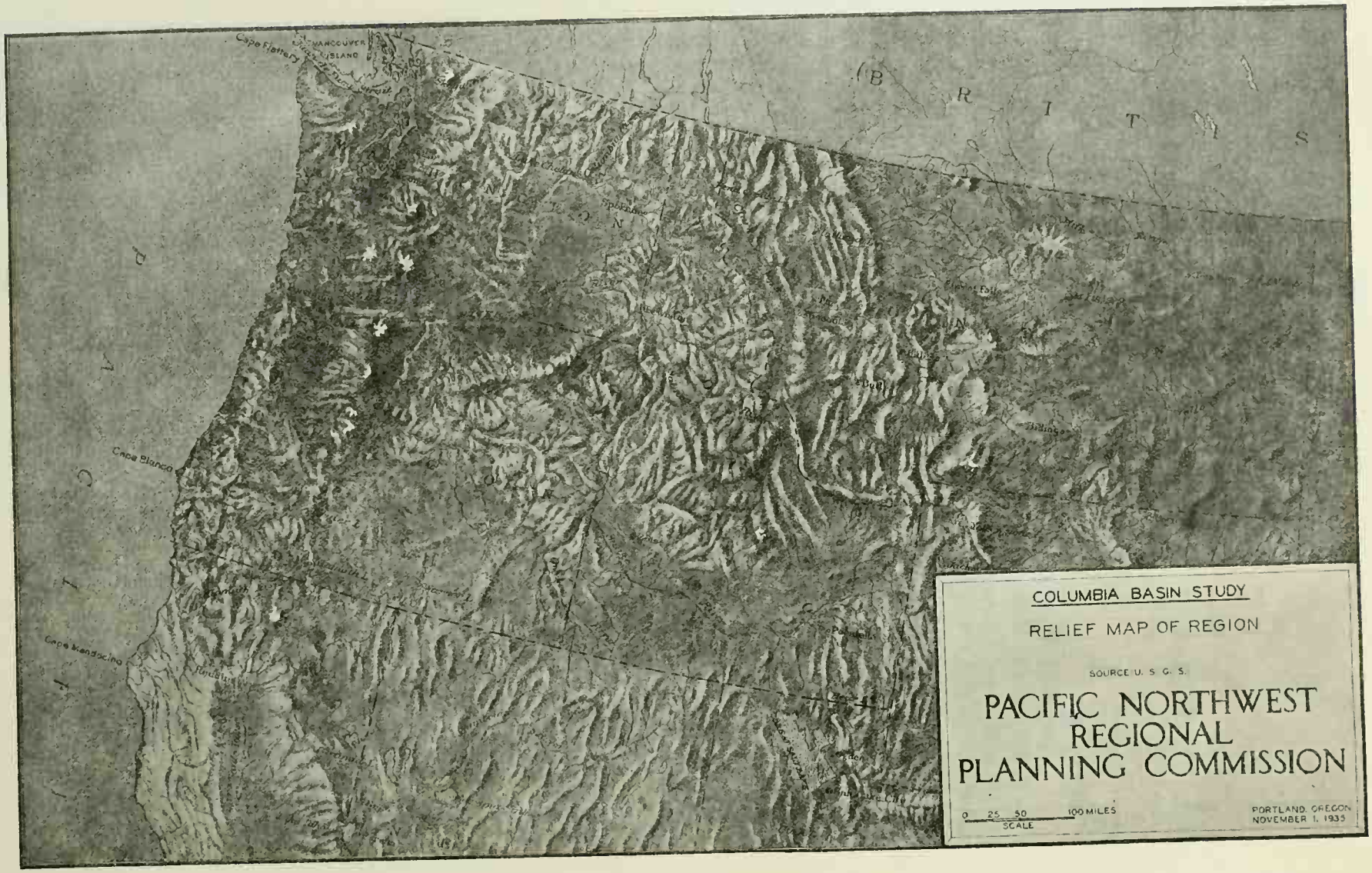
DANIEL C. ROPER,
Secretary of Commerce.

FRANCES PERKINS,
Secretary of Labor.

HARRY L. HOPKINS,
Works Progress Administrator.

FREDERIC A. DELANO.

CHARLES E. MERRIAM.


Cape Flattery
VANCOUVER ISLAND
B R I T I S H
Cape Blanco
Cape Mendocino
COLUMBIA BASIN STUDY
RELIEF MAP OF REGION
SOURCE U. S. G. S.
PACIFIC NORTHWEST
REGIONAL
PLANNING COMMISSION
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SCALE
PORTLAND, OREGON
NOVEMBER 1, 1935

REGIONAL PLANNING—PART I
PACIFIC NORTHWEST

Contents

Foreword—Recommendations of the National Resources Committee

	Page
1. The Problem	VII
2. Method of the Report	VII
3. Findings and Principles	VII
4. Recommendations	XIX

Report of the Pacific Northwest Regional Planning Commission

1. Introduction	3
2. Findings and Recommendations	4
3. Conclusion	15

Report of the Special Staff Assigned to the Columbia Basin Study

Section I.—Digest	
1. Introduction	20
2. Synopsis	22
Section II.—The Region: Its Resources, Problems, and Needs; and its Future	
1. Introduction	30
2. Conditions, resources, and activities	31
Physiography—Climatology—Water Resources—Land Resources—Mineral Resources—Industries—Commerce—Transportation—Recreation—Public Works	
3. Population	73
4. The future of the region—general summary, analyses, and recommendations	91
Section III.—Definition and Regionality of Pacific Northwest	
1. Introduction	96
2. Potential planning problem areas in the Pacific Northwest	98
3. Homogeneity as a basis for regionality	99
4. The Columbia River—A unifying bond and a subject for regional planning	101
5. Other tests of regional homogeneity in the Pacific Northwest	103
6. Tests of political homogeneity	121
7. Cultural history and regional homogeneity	124
8. Proposed boundaries for regional planning in the Pacific Northwest	127
9. Commercial competition as a deferrent to regionalism	130
Section IV.—Plans for Regional Organization	
1. Organization for planning in the Pacific Northwest	135
Planning activities undertaken	135
Functions that should be embraced in planning	146
Planning organization and structure	153
Relation of Pacific Northwest Regional Planning Commission to a national planning agency	167
Conclusion	170
2. Organization for construction of public works	
Introduction	171
Public works planning	171
Conclusion	174
3. Organization for operation of public works	
Introduction	175
Construction agency to operate after completion	176
Relative advantages of bureau, corporation, and commission	177
Unified operation under an existing agency	183
Proposed operating organization	186

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FOREWORD

RECOMMENDATIONS OF THE NATIONAL RESOURCES COMMITTEE

1. The Problem

While the National Resources Committee was engaged on the general study of "Regional factors in national planning and development", the President requested a special investigation of the regional planning problems in the Pacific Northwest. The construction of Bonneville Dam and of the Grand Coulee Dam, and the necessity for early decisions concerning arrangements for marketing Bonneville power brought to a focus questions of regional organization and planning.

What should be the policy for future planning in the great area drained by the Columbia River? How can the enormous resources of water, forests, and minerals in that area be best utilized and conserved for the benefit of the present and future generations? How can these resources be organized for the benefit of the whole region?

2. Method of the Report

In order to secure the views of the people in the area, the National Resources Committee requested the Pacific Northwest Regional Planning Commission to study and report on the problem. The Commission is composed of the chairmen of the State planning boards in Idaho, Montana, Oregon, and Washington with the district chairman of the National Resources Committee as chairman, and is served by a staff in the office of the district chairman. The report includes:

1. The report of Pacific Northwest Regional Planning Commission, pp. 1 to 16.
2. The staff report in four sections, pages 17 to 192.

The National Resources Committee herewith presents an analysis of the findings and recommendations of the Pacific Northwest Regional Planning Commission and the recommendations of the National Resources Committee itself.

3. Findings and Principles

a. The Resources of the Region

Problems and Future Development

The four States of Idaho, Montana, Oregon, and Washington (the Pacific Northwest region) contain an area equal to 13 percent of the entire continental domain of the United States. In contrast with that large domain, it has less than 3 percent of the total population. It is a region primarily devoted to the production of raw materials, of which the chief are forestry products, grain, fruits, minerals, and fish. Manufacturing plays a minor role except for the growth of manufacturing processes fabricating the raw materials listed above.

The review presented by the report of the material and human resources of the region sets forth a wealth of interesting and significant data. These have been recapitulated in the epitome of the staff report, pages 19 to 28 below, and do not need to be restated here. It is desirable, however, to select certain aspects of this body of fact and suggestion for special comment. We are therefore discussing only those phases of this portion of the study which seem to us to possess largest regional and national significance, and concerning which national planning policies must soon be formulated.

Raw Materials and Industrial Development

The data assembled indicate a smaller volume of industrial activity than in many other sections of the Nation. It is pointed out that the value added by manufacturing in the Pacific Northwest is about one-fifth below the national average. It is further indicated that, were it not for the excess above that average produced by the manufacture of forest products, the deficiency in manufacture would be still more marked. The discussion in the report assumes that the proper economic development would markedly increase the industrial activities. This point of view may be correct, but before it can be accepted as a basis for further planning and for the expenditure of Federal funds in the Northwest, it needs to be appraised in the light of a national policy of industrial development. We point this out here for the reason that if this point of view is not subjected to examination in an analysis which will attempt to appraise the needs of each

region in the light of the total national economy, it may lead to misapplication of funds and distortion of effort.

This Committee is not in a position to judge the adequacy of the program sketched out in this section of the report. We would enter here, however, a caution that the best use of the Pacific Northwest region may involve a plan for its development which retains it as a major source of raw materials—timber, minerals, and agricultural products—for the Nation. The kind of added industrial activity which should be developed in that region can be determined properly only in the light of the national as well as the regional situation. This is a problem in planning which illustrates the need of continuous and adequate national planning related to regional and State planning.

Forest Resources

The Committee is impressed by the present key importance of the forest industry in the economy of the Pacific Northwest region. The conclusions presented in the report show that this area contains 55 percent of the entire virgin timber within the national boundaries. It is thus the basic supply for the Nation of this great raw material. Its importance to the rest of the region is indicated by the fact that it supports over 25 percent of the population within the region and that it employs in the States of Oregon and Washington 59 percent of all the workers who are engaged in industrial activity. The maintenance of the timber industry is, therefore, of crucial importance to the welfare of the region.

The data presented clearly indicate that private and public economy in these States is in serious jeopardy because of the failure of national and regional policy to base the development of this resource upon a sound foundation. The most crucial phase of this problem has to do with the harvesting of timber on private lands. While the publicly owned timber area is larger than that under private ownership, the private timber lands contain the largest proportion of accessible saw-timber. There are few private operators now managing their forest estates upon the principle of sustained yield. State and local policies of taxation, the highly competitive character of the timber industry, and other forces have created a practice in the extraction of this great resource which is rapidly liquidating this forest domain. Depletion by cutting is proceeding at a pace twice as rapid as the current annual growth. To that depletion must be added other causes, principally fire and insects, which are removing timber about half as rapidly as it is being produced.[1] In many parts of the region the timber resources are approaching exhaustion. This is particularly true in northern Idaho, in northeastern and northwestern Washington, and in the once heavily timbered counties of northwestern Oregon adjacent to the Columbia River. It is estimated that in Idaho the next 10 years will see a rapid shutting down of lumber operations. In western Montana the situation is not so acute. In all of western Washington, except in Lewis, Cowlitz, and Pacific Counties, the major supply of high-grade fir and cedar on private lands will disappear in less than 10 years. In those areas there is a very small supplemental supply of the same kind of saw-timber on public lands. The Gray's Harbor area is rapidly curtailing its lumber operations because of this decline in the supply. The problem in Seattle, Tacoma, Everett, and other towns of the Puget Sound is becoming much the same. Within a comparatively short time there will be less than half the present capacity operating unless the demand for lumber should so change as to permit the utilization of small logs and other species. In western Washington and northwestern Oregon there are large remaining stands of publicly owned pulp timber, adequate to support a considerable expansion of pulp and paper, but that expansion cannot proceed at a rate to compensate for the rapid shrinkage which is occurring in the lumber industry. As Washington is being cut out, new mills spring up in the fir-timber area of the upper Willamette River and the other coastal watersheds in Oregon, with the prospect of a rapid depletion of the best fir timber there. What happened in the timbered sections of New England and in the Great Lakes region is now on the way in the Pacific Northwest.

The practice of sustained yield is urgently required on private timber lands, State- and county-owned timber lands, as well as the Federal forests, if this resource of the Pacific Northwest region is to continue in present importance as a basic supply for the Nation and for the livelihood of the people in that area. Sustained yield management requires a policy which will return annual timber crops of approximately equal size and value and furnish permanent employment, wages, and stable industrial communities. This is an objective which can be reached only by the cooperation of State and national legislatures and administrations and the industries concerned. An intricate series of policies is involved, too lengthy to recapitulate here, but they are set forth in detail in the staff studies of this report. Attention has been directed to this problem in the previous Land Reports of the National Resources Board (pp. 206 to 216 in report of Dec. 1, 1934).

[1] These are the figures for all forest lands, private and public.

Water

The importance of the water resources to this region is due principally to the need for navigation, irrigation, and the opportunities for hydroelectric development. The navigation possibilities of the Columbia River are set forth at length in the report of the Pacific Northwest commission. The fact that the region east of the Cascade Mountains has relatively scant moisture with many sections having less than 12 inches of rainfall per year makes the Columbia River system with its large and steady volume of water supply of peculiar significance to the life of this region. Perhaps the chief impetus to organize State planning came from the distress of those farmers and communities dependent upon supplies of water for irrigation. This was, of course, especially true in Montana, Idaho, and the eastern parts of Washington and Oregon.

Yet even on the well-watered slopes of the west Cascade areas, the uneven distribution of rainfall produces a summer aridity which can only be adequately overcome by irrigation there. There is a growing awareness in the Willamette Valley and the other agricultural areas on the green side of the Cascades of the importance of supplemental irrigation between June and October. Desperate efforts have been made in the past few years during which time excessive dryness has occurred in the eastern parts of this region to find supplemental water supplies for existing irrigation projects and for the watering of livestock on the ranges in this same territory. During this period new projects have been proposed of which the Columbia Basin is the largest and most important. That enterprise is coupled with the construction of the high dam now under way at Grand Coulee on the upper Columbia.

In the consideration by State and regional planning bodies of irrigation problems, there is urgent need for cooperative study and consultation with the national planning agency. Here again wise local and regional development cannot be undertaken without joint consultation and without the establishment of a national policy concerning land use which the State and regional planning commissions may have as guides for their work. Again, previous reports of the National Resources Board treat with this problem (Dec. 1 report, pp. 253 to 388).

Power

The total developed and potential water power resources of the region are estimated to be sufficient to generate something over 15½ million kilowatts of firm power which will be available 90 percent of the time. Of this total something over 11½ million kilowatts can be generated on the Columbia River and its tributaries. The water power resources of the region represent 41 percent of the total potential water power of the United States. At the present time 155 water-power plants exist which are capable of generating a little over 1,400,000 kilowatts. The interconnecting transmission line facilities between these and the 51 steam and other plants are of comparatively low capacity. They are sufficient to transfer small amounts of power from one region to another, but quite inadequate to serve as the basic means for transmitting power from the Public Works projects now under construction.

The ultimate capacity of Bonneville is estimated at 430,000 kilowatts, while that of the Grand Coulee plant will be 1,890,000 kilowatts. The plant now being built by the city of Seattle on the upper Skagit will have a capacity of 120,000 kilowatts. These publicly owned hydroelectric plants will more than double the present installed capacity of all electrical generating stations in the region. In addition to these works now under way, there is the prospect that other structures on the Columbia and its tributaries designed to serve the interests of navigation and irrigation will release large additional blocks of electrical energy.

It would appear that a wise national policy will see to it that this new resource is so distributed as to achieve the maximum regional and national benefit. That requires that the surplus electric energy from Bonneville, Grand Coulee, and such future federally financed public works on the Columbia River and its tributaries as may be built shall become available to the greatest number of people at the lowest practicable rates consistent with the solvency of the works used for the generation, transmission, and distribution of such energy. It follows that the operating agency should adopt a policy for the sale of electricity which will make rates similar over large areas, which will pass along the economies in the prices of wholesale power to the ultimate consumer, and which will contribute, insofar as may be wise, to the stabilization of existing communities, the appropriate decentralization of new industries, the increase of steady employment, and the increased consumption of electric energy by farmers and domestic consumers.

The fulfillment of this principle requires the construction of a central grid system—a superpower network designed to serve both the existing and new generating and transmission facilities by coordinating them into one unit and making available large blocks of power in the present and future market areas at the lowest possible cost. Certain of the existing generating and transmitting facilities are important technical and economic factors in a greater power system network, and it is desirable, therefore, to use them in

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any such plan. A superpower system for such a region must be able to transmit large blocks of power from the water-power sources to the ultimate load centers. It should be so designed as to serve new blocks of power as they become available without interfering with or changing the fundamental plan.[2]

Our technical experts report that the chief results to be anticipated from the ultimate operation of such a regional supergrid system are: (1) A more adequate and flexible supply of firm power for present and early future needs; (2) a greater use of existing facilities for generation, transmission, and distribution of electrical energy and of invested capital; (3) reduction in new capital expenditures; (4) greater opportunity for diversification and decentralization of industry through the wise distribution of power; (5) more effective utilization of the water resources for navigation, reclamation, recreation, and power purposes. These beneficial results will be reflected in the electrical rate structure. (See pp. 40, 41.)

The type of superpower network recommended is a modification of the system referred to as "synchronized at the load", which is a high-voltage, high-capacity, constant-voltage network, with switching and transformer stations. This proposed network would extend from Spokane westward to the Puget Sound area, thence north, and south to the Portland region and Bonneville, and thence up the Columbia Valley to the Grand Coulee project. The general shape of the network would be that of a large triangle with extensions from each of its three corners.

In the more distant future, this might be extended by parallel lines and transmission features and by extending the transmission network eastward into western Montana and southeast along the Snake River. It is not necessary or intended that such a system should be constructed all at once, but in the consideration of a plan for ultimate development, this pattern is recommended. Its advantages are listed on page 45.

The Future Use of Electrical Energy

How soon these new volumes of electrical energy will be used is a matter of considerable speculation. An answer to this question depends upon a great many factors of which the increase of population, the increased per-capita use, new uses in agriculture and industry, decline in costs of equipment and installation, substitution of electrical energy for other forms of mechanical power, and the changes of living standards are perhaps the most important. The report predicts that the demand for electrical energy which has always exceeded predictions in the past will go beyond estimates based upon our present knowledge. To some extent, the increase in use can be guided and stimulated by the policy pursued by the agency which will operate the superpower network. The rate policy pursued is an important factor in deterring or increasing consumption. Moreover, the type of consumers wanted, can to some extent, be controlled by the operating policy adopted. It is quite possible to throw the bulk of this energy to large electrochemical industries or it is possible to pursue a policy of balancing use as between industry, agriculture, and the domestic consumer.

The research program undertaken by the operating agency and the associated planning bodies may discover new economic uses, such as house heating (already promising practicable development as a result of experiments at Washington State College). In order to have this use guided into the most desirable social directions, it is necessary that the operating organization have unified control over the transmission and disposal of these new and prospective Federal hydro projects and that it be endowed with a directing personnel competent and willing to weigh carefully the alternative choices which are presented. It is also necessary that these men be in constant contact with the official agencies charged with unified planning for the region.

Population

Basic to all other phases of planning in a regional developmental program is the need to estimate the trends of population, trends that relate not only to quantity but to quality as well. By quality is meant the cultural standards and the economic levels of the population as well as the distribution between age groups. Perhaps no single factor is as influential in affecting the other questions of conservation and development as: How many and what kinds of people will live in the region?

The findings of the Columbia Basin report show divergent judgments as to what may be expected in the way of future population in the Pacific Northwest region. This divergence is doubtless due to the more difficult task of prediction for the population changes within a particular region than for those affecting the entire Nation. Freedom of population movement within the Nation—a freedom which has ceased for migration across our national border—makes it possible for internal shifts of population to take place which, while greatly affecting the developments of a particular region within the Nation, will have little bearing upon the total national population trends.

The staff study makes clear the fact that the trends of population for the Pacific Northwest region are

[2] For discussion of the technical requirements of the proposed system, see p. 43 of the staff report.

showing important changes as compared with earlier periods. There appears to have been a net outward movement of population from the region except from the State of Oregon during the decade from 1920 to 1930. The birth rate varies markedly among the four States, giving a very low natural increase of population in Washington and Oregon and a fairly high increase in Montana and Idaho. The future net growth from natural increase for the region as a whole would appear to be small. An internal migration is, therefore, the crux of the future population situation for the Pacific Northwest. Since the most reliable and recent studies of internal migration in the United States conclude that movements of population during the last intercensal period were generally from areas of low living standards to areas of higher living standards, the continued growth of population in this region will depend chiefly upon the opportunities it offers to the common man to obtain a higher standard of living than he can find in other parts of the country.

One of the difficulties presented to any regional planning organization in trying to forecast population trends is its inability to appraise its factors accurately without a knowlege of comparable possibilities in each of the other regions of the United States. For each regional planning commission to estimate how favorably its natural resources may affect population migrations to its borders, it must know how similar factors have been appraised in the other regions from which population might come. Each regional planning group working by itself may be tempted to overestimate the favorable influences of its remaining resources, particularly when those resources are considered without reference to a full knowledge of market possibilities. As a consequence, it is possible to have a total estimate of national population by regions which may greatly exceed the total anticipated national population. Two services are needed to help refine such population estimating. One is the study to which we have already referred of the total national economy in which the existing and potential interchange of goods can be revealed The other is the assistance which may be rendered to the regional planning staffs by a national planning board equipped to carry on population and other studies simultaneously and in cooperation with the regional planning groups.

b. The Pacific Northwest as a Region

A section of the Columbia Basin study has been devoted to the analysis of factors making for regional cohesion and to a delimitation of the boundaries which should be recognized in setting up regional planning structures. That portion of the report was made with the preliminary report of the Committee on Regionalism of the National Resources Committee as a guide and stimulus. It was the feeling of the Regional Planning Commission and this Committee that here was an opportunity to profit by the data and tentative conclusions made available by the comprehensive national study, while at the same time securing a more intensive and complete analysis of the factors relating to regionalism in the four Pacific Northwest States. It was the hope that such a study might throw new light not only on the situation in that part of the Nation, but perhaps make some contribution to a further understanding of the general regional question.

The outstanding findings of this Pacific Northwest study are:

1. That there is a Pacific Northwest region which embraces the States of Washington and Oregon, the western part of Montana and all of Idaho except perhaps the southeast corner and that this area has sufficient cohesion to offer a promising basis for regional planning;

2. That for the consideration of planning problems relating to the multiple purposes served by the Columbia River and its tributaries, all of Idaho should be included together with a small portion of northwestern Wyoming;

3. That in the case of this region the Columbia River system is a tie of very great importance between the States which it drains and in particular that it is a close link between the parts of Oregon and Washington divided by the mountain mass of the Cascade range;

4. That flexibility of regional planning boundaries as well as flexibility of lesser planning area boundaries can and should be secured by interregional and interarea coordinating devices without sacrificing the need for unity of regional, State, and county planning organizations;

5. That the greatest menace to effective regional action in the Pacific Northwest comes from tensions due to local rivalry which frequently have aligned one city against another, the small town against the metropolis and one irrigation district against its fellow. These tensions are the byproducts of the struggle for the advantages anticipated from the growth of population, from the benefits of public works, and from the expansion of the economic and social life of the region.

Principles

In its definition of a region for governmental planning, the report follows the specifications which are set forth in the analysis of Regional Factors in National Planning, and puts a special emphasis upon the need, when considering the boundaries of regional

areas, to provide for their coincidence wherever possible with whole counties and States. This emphasis is based upon the analysis of actual planning activities of the county, State, and regional planning commissions. These indicate the constant tendency of plans to require legislative and administrative action. The fruits of governmental planning, including regional planning, will not be garnered in most instances until they take the form of legislative policies and administrative behavior. On this account, it is concluded that it is easier to make certain compromises with the *ad hoc* character of problem areas than to run the danger of thwarting planning by cutting through States and counties when creating over-all State and county planning boards. It is a question of weighing the conflicting factors of functional wholeness and precision against the need for legislative and administrative action and the public's need for simplicity of structure.

The Pacific Northwest Commission's analysis accepts the national committee's hypothesis that homogeneity is the most important single test of the fitness of an area for regional organization. It insists, however, that there is some danger lest the geographer's point of view concerning this quality be overemphasized. For correctives to this emphasis, it suggests the use of tests that are chiefly economic and cultural in character. Such cultural ties may actually break through the natural barriers which geography appears to present and which in a simpler civilization would be effective in keeping people so far apart in outlook and sympathies as to make regional action impossible. On this account, the study of the Pacific Northwest area has made use of historical data relating to cultural habits and economic intercourse. It has studied a few of these factors, such as the distribution of lumbering in the four States, the distribution of different types of agriculture both as to kind of product and major agricultural techniques, the traffic density as shown by studies of motor vehicle traffic on the highways of the region, the analysis of regional transportation facilities, and the correspondent bank relationships between cities and towns both within the four States and with banking centers outside. The regional organization of the two great mail-order houses furnishes another clue to economic and commercial intercourse. Among possible cultural tests of homogeneity, the study made use of available information concerning religious affiliation, newspaper distribution, and long distance telephone messages between selected toll centers. It also examined for the States of Oregon and Washington, whose homogeneity for planning purposes had been questioned in the national committee's study, the votes cast on initiative and referendum measures at two elections separated by intervals of about 20 years. Lack of time and inaccessibility of other significant test data made it impossible to be sure of a precise boundary in Montana and in Idaho, but the net effect of the factors examined appears to be that Oregon and Washington, western Montana and all of Idaho except the southeast counties made up a unit which for general planning purposes might well constitute the Pacific Northwest region.

The analysis indicates that so far as divisions between sections of this great territory manifest themselves in political behavior, those divisions pursue a rather different pattern than a geographical analysis might anticipate. Cleavages illustrated in the initiative and referendum votes and in State legislatures appear to be due much more to small-town-urban differences or to cultural attitudes which exist within the same subregional or sub-State area. The pattern of social cohesion and tension appears to be much less the result of mountain mass, differences of rainfall, and other climatic phenomena than of the accidents of cultural history, the character of economic activities, and the web of interconnections of group with group.

Against these factors which favor a sense of regional community is a contradictory tendency which may interfere with the success of regional planning. This is the exaggeration of the normal and useful rivalry between local communities and areas for population, wealth, and prestige. Wholesome and stimulating competition among communities may, under certain circumstances, become bitter and destructive antagonism inconsistent with the good of all or any concerned. Different cities and towns naturally desire increases of population for their respective communities. At the present juncture, when as a result partly of the large Federal expenditures for public works, they have high hopes of a great industrial expansion, with large accompanying increases in population, they are keenly concerned in securing the lion's share of the prospective additions. Out of that desire, based upon the many advantages accruing under conditions where large populations congregate, may come increased tensions and local jealousies which will thwart the influences which have been reaching out toward a sound regional community of interest. This seems particularly likely to occur if the generation of large blocks of cheap electrical energy at Bonneville and at Grand Coulee, and later at the other stations on the Columbia River, results in concentrating in one or two favored locations the industries that may use this power.

If regional planning is to succeed, local tensions must be kept within the bounds of the common good of the region. At the present juncture, the Federal

Government has a peculiar opportunity to increase the balance in favor of regional homogeneity and regional planning and development. The policy it adopts toward the use of the great works on the Columbia River may further the regional movement in the Pacific Northwest or it may accelerate the tendencies. If Bonneville power is distributed in such manner as to concentrate its benefits in the Portland area, and if Grand Coulee energy is sold on terms of peculiar advantage to the people of the Spokane area, regionalism will proceed under a severe handicap and an uncooperative localism will spring up. A wise Federal policy will insist, therefore, that the benefits of its regional investment shall be spread as widely as is economically possible throughout the region.

c. Organization for Planning

The Pacific Northwest Regional Planning Commission is one of two regional commissions operating over a long enough period to furnish valuable experience for national planning and for the other regions which may be organized for planning purposes hereafter. The review of its experience given in detail furnishes suggestions on numerous minor points and raises a number of major questions about the scope of regional planning, the kind of structure which should be created, and the relationships between the States on the one hand and national interests on the other.

In the case of the Pacific Northwest Commission, since four of its five members are chairmen of State planning boards, there has been a particularly close tie to State planning activity. The end products of the regional commission have in considerable degree been activities undertaken by the State and local planning boards. For a rounded judgment, therefore, the detailed account of these local planning agencies should be read.

It is clear that the scope of planning functions undertaken has been very definitely limited to physical planning problems, such as irrigation, roads, flood control, public works, and to questions affecting the conservation and development of natural resources, such as fisheries, forests, minerals, and to a few problems of State and local administrative reorganization. Perhaps the most important single enterprise undertaken by the regional planning commission has been related to the preservation of the Columbia Gorge as a recreational area. The principle is suggested that the range of planning activities which governmental planning structures may undertake is limited to what public opinion in the region and its subdivisions desires. While those limits are subject to short-term variations, there are deeper, more abiding, popular traditions that will always act and should act as limiting factors in the work of governmental planning agencies.

Certain problems of structure and relationships of the regional planning commission are revealed by this report. There is, first, the relationship of the commission to the States. As has been indicated, the membership of this commission is based on the representation of the State planning boards which have four of the five present members. The fifth member is the representative of the National Resources Committee in that region. He is the only member receiving salary for his work. Is this a proper balance of interests in the membership of the regional planning board? There is some difference of opinion on this subject contained in the discussion in this report, although there is agreement that the national interest as reflected by the activities of Federal administrative departments operating within the region should be better organized for consultation with the planning commission. The regional commission feels that a coordinating committee selected from the Federal agencies most concerned with conservation and development, and with major public works, should be brought into a strong, well-defined, and effective relationship with the regional planning commission. That proposal does not mean, however, that the membership of the commission would include more Federal representation, since it is feared that additional Federal representatives would make this body "too much of a national organization" and would cause it to cease to be "truly regional in character, fully representative of the States as a vehicle of public purpose and program."

On the other hand, the staff study suggests a somewhat different set of principles as the basis for constituting the regional planning group. In that view, regional planning organization is partly an expression of the need for a body politic intermediate between the State and the Nation, partly an expression of the inappropriateness of existing State boundaries, partly an outgrowth of the federalizing tendency which requires closer articulation between State and national activity. There is no chance that State boundaries will be changed or that the regional body politic will be created. Therefore, these newly felt needs will have to be realized by: (1) uniform or coordinated State action; (2) coordinated Federal activity within the region, and (3) integrated Federal State action.

It is believed that uniform or coordinated State action can be attained through State representation. State members should be particularly concerned with needed uniformities of State policy relating to similar problems. That is one very important way in which regional integration may be achieved. State

representation is also indispensable in suggesting ways in which Federal activity within the region may help or hinder regional integration.

Nevertheless, the largest volume of governmental activity which transcends State lines and, therefore, tends to integrate and coordinate regional needs, is the work of the many Federal administrative departments which operate within the region. But in order to do their work properly, they too need coordination. That should be principally the task of representatives on the regional commission who can speak for these Federal activities. It is also a matter of special concern to the "over-all" Federal interests that should be expressed by representation coming from the national planning agency. But Federal activity in the region must also be coordinated with similar State activity. If the Federal agencies are not represented on the regional commission in a manner consonant with these principles, that cannot take place effectively. Only one partner will do the "coordering." The other, feeling that, as compared with the States, it is spending much more money and doing much more work that is regional in character, is likely not only to pay little attention to such "coordering", but will not be continuously anxious to keep the commission advised of its anticipated programs. For this reason, the staff analysis concludes that the regional planning commission requires three types of representation: (1) Representatives from State planning boards, (2) representatives from the national planning agency, and (3) representatives from the Federal bureaus most actively engaged on work relating to the conservation and development of natural resources.

The chief research instrumentalities of the regional planning commission have been technical advisory committees. These are made up, in most cases, principally of the chairmen of State technical advisory committees which deal with the same questions. Unfortunately, experience shows that except in two or three cases, these regional committees have been unable to function in any continuous or thorough fashion, largely because of the lack of money to defray travel expenses and the lack of clerical assistance which their work requires. The design for these research activities seems adequate, provided funds can be secured to meet the necessary expenses.

The experience in the Pacific Northwest reinforces the suggestions made in the report on regional factors in national planning as those bear upon the responsibility of the Federal Government carefully to coordinate its own administrative agencies which deal with problems of concern to the several governments within the region. It reinforces the proposal that the Federal policy reexamine the grouping of Federal districts used by the many United States agencies in order that a total subnational view of the problems of a regional area may be attained by all the Federal units working within the area. It is pointed out, for example, that the opportunity to bring certain Federal departments operating in the region into the discussions from which planning conclusions emerge varies because of two differences existing among the many Federal agencies within the Pacific Northwest region. These two differences are, first, the absence of adequate representation in Portland (which is the main center for regional planning) of certain Federal bureaus and, second, the differences in administrative policy pursued by different departments with reference to the degree of autonomy permitted regional offices. In some cases, traditions support a highly centralized administration while in others a large degree of self-determination is accorded the regional office. The report emphasizes the need to reexplore both aspects of administrative policy.

The relations of the regional planning commission to the National Resources Committee have also been analyzed from the regional point of view. The outstanding suggestions made in this connection are: (1) The need of sufficient representation of the national planning group upon the regional planning commission to convey the over-all national developmental interests to the State and separate Federal agency representatives. It is suggested that without such representation, the total national view may be lost sight of, with the danger that regionalism may become sectionalism. But just as strong a conviction is presented that the regional interests depend in part for their fulfillment on national legislative and administrative activity and that for this purpose representation of the national planning agency on the regional commission must be accorded and tied by frequent contacts with the national planning board. Urgent need is also felt for a permanent national planning board which can speak effectively for the region both to the Washington offices of administrative departments and to Congress. (2) The analysis of Nation-wide problem situations, such as land utilization, stream pollution, etc., by technical committees selected by the national planning agency should proceed in cooperation with similar studies by the technicians attached to regional and State planning boards. Staff relationships between the boards operating on three levels should be more closely integrated. Otherwise, effort will be wasted and the fruits of the studies not so likely to be gathered since many of the recommendations of the national board's committees call for important changes in State and local policy.

"Streams of policy proposals resulting from such committee research should pour in each direction systematically to the proper boards. There should also be a two-way movement of recommendations and proposals between the regional commission and the National Resources Committee."

d. Organization for the Operation of Public Works

The Pacific Northwest Regional Planning Commission confined its study of operating organization entirely to the problem of power facilities. It was tacitly assumed that the irrigation and the navigation phases of public works would be operated by agencies which have carried on these functions in the past. The concentration of attention on the power function is due to the urgency of an answer to the question of handling Bonneville power, and to the economic and social importance of the prospective power developments on the Columbia River system. The conclusions reached are that for this task an operating organization must be designed to provide:

1. Unified management of the primary function and of other functions so closely related as to be indispensable to it.
2. The attainment of driving power and administrative talent adequate to secure the maximum social advantages of the new and projected public works.
3. Responsiveness to regional sentiment and desires.
4. The maximum protection of the national interest through proper attention to the business requirements of the enterprise.
5. Articulation with regional planning.

The report proposes that Congress create a Federally owned corporation. This preference is based upon an analysis of the relative advantages and disadvantages of a corporate form of organization as compared with the regular Government bureau. The Pacific Northwest Commission finds that the advantages of the public corporation are:

1. The proposed public corporation would possess a single power function and would be free from the competition for funds with other bureaus in a multipurpose department.
2. A corporation, unlike a regular bureau, could have its center of gravity within the region where it carries on its business.
3. The corporation could and should develop its own merit system and yet be given the flexibility in personnel policies which are required for business enterprise.
4. The most important advantage in the corporate-form organization is the stable, financial foundation given it, and the challenge presented to it to make income and expenditure balance.
5. The accounting and auditing practices of the corporation can be designed to aid management purposes. What is required for the power production enterprise is an accounting system essentially like that of a private utility.
6. A Government-owned corporation would be liable for torts committed against private persons, whereas an ordinary bureau would not be so accountable.

The report of the regional planning commission transmitted to us is opposed to the endowment of such a corporation with the scope of the T. V. A. Instead, it feels that the Columbia Basin needs will be better satisfied by an organization which is restricted to a single major function. This conclusion is based upon the following findings:

1. There are already operating in the Pacific Northwest region a number of T. V. A. services performed by other national agencies. These are well established and have a reputation for superior work. Specific examples are the United States Forest Service and the Bureau of Reclamation, both having long and distinguished records, the new Soil Erosion Service, the Resettlement Administration, the Grazing Administration, and the Rural Electrification Administration—each offering to this region a well staffed organization for dealing with certain problems of maladjustment, some of which in the Tennessee Valley may be carried under the aegis of the Tennessee Valley Authority.

2. The most acute problems facing the northwest region which call for solution are those relating to the exhaustion of the timber and mining resources. The solution of these problems, the regional report asserts, lies outside the province of any single Federal authority. It ought to be nationally advantageous to compare the effects which a unifunctional corporation may have in the Pacific Northwest with the achievements of the Tennessee Valley Authority in a region having some similar but many different problems.

The report finds that this public corporation should operate the electric power functions of the Bonneville project, of Grand Coulee (when that is completed), and of the other public works generating hydroelectric energy when the latter are built by the Federal Government. The tasks which it might perform are analyzed into the two following groups:

A. Powers that should be entrusted wholly to the operating agency.

1. Major transmission lines (planning, design, construction, maintenance, and operation).
2. Interconnection of plants.
3. Interchange and dispatch of energy, and its measurement.
4. Design of power facilities.
5. Development of power markets.
6. Specific planning for further development of power system.

7. Sale of power (wholesale), the rates which it determines, with suitable control over resale rates.

8. Power production control.

9. Release of water from Federal storage reservoirs.

B. Powers that must be given but may be shared with other agencies.

1. *Establishment of rates* might be shared with Federal Power Commission, but better results anticipated if latter agency functions in advisory capacity.

2. *Purchase of power.*—Contracts to be subject to criticism and advice of Federal Power Commission.

3. *Power production* ought to be under complete control of operating agency, but actual operation could be done by other agencies.

4. *Release of waters stored by Federal works* within the provisions of interstate compacts and by cooperation with State agencies charged with the duty of water distribution.

5. *Research and experimentation.* — Operating agency should be expected to push this activity in directions aiding in widening power market but would cooperate with regional and State planning commissions and other research agencies.

6. *Construction of new dams, reservoirs, etc.*— Right to decide when and what kind of hydroelectric installations to be in hands of operating agency; to cooperate with other agencies concerned with navigation, flood control, irrigation, and fisheries, as to when and where new dams and reservoirs to be built; construction to be given to Army engineers and/or Bureau of Reclamation, or other agencies.

e. Desirable Type of Structure for the Proposed Corporation

It is proposed that the corporation be governed by a board of three directors to be selected by the President. What is desired is a personnel which will include at least one member possessing special qualifications for supervising the management of the power functions. That person should serve as a full-time officer and chairman of the board. One member of the Regional Planning Commission, perhaps its chairman, should serve as another of the directors. The third member should have special qualifications in public relations and in the fields of social and economic development. It is desirable that the board should be closely tied to the regional planning structure by at least one member in common, as well as by the policy of utilizing the Regional Planning Commission as an advisory council to the board of directors. It is probable that only the chairman of the board should receive compensation for full-time services. If that is true, then it might be a good policy to select for the third place men who are officially identified with other Federal administrative agencies who may possess experience needed on the board of directors of this corporation.

Finances and Rate Policies

To set up a proper capital accounting system and rate structure, there must be an allocation of costs on each Federal project where purposes in addition to hydroelectric development are being undertaken. Special temporary boards might well be used to make initial allocations on each project. These boards might be selected by the President so as to represent each of the interests concerned, including the proposed corporation, the Corps of Engineers, and (where irrigation is involved) the Reclamation Service. It might also be desirable to give representation to Federal relief organizations if, as we believe, a part of the cost of such structures should be allocated to relief purposes. Probably the Federal Power Commission ought not to be on these allocating boards, since the power interest will be represented by the corporation and since the Power Commission will have other important regulatory relationships to the corporation.

Capital for construction of transmission lines, for the addition of generators as they may become necessary at Bonneville and Grand Coulee, and for financing operations until the corporation has sufficient revenue to balance its operating expenditures would then be furnished in a manner similar to that permitted the Tennessee Valley Authority. Bonds should be sold by the Treasury upon request from the corporation, but a maximum amount would be fixed by the statute creating the corporation. This should be determined after careful estimate of the probable cost of the capital facilities listed above.[3]

Revenues received by the corporation for the sale of power should not be put into the regular Treasury funds since if that is done they can only be withdrawn under the slow and cumbersome processes now required for congressional appropriations. Instead, they should be treated as funds of the corporation held in trust by the Treasury for the corporation's use. In this manner the obligations which are bound to be incurred by this Government electrical utility and which must be met promptly in cash, can be fulfilled. To use the routines prescribed for the ordinary bureau expenditures would menace the success of the enterprise.

The power of eminent domain granted the corporation must be ample to permit it to purchase land needed to protect the communities dependent upon the activities of the corporation from the kind of real estate exploitation and blighting which has resulted at and near Bonneville and the Grand Coulee.

[3] Two generators only are being installed at Bonneville by the Corps of Engineers. Plans, however, call for eight more. At Grand Coulee, 2 generators are to be installed initially, with 16 or 20 additional when the structure is completed, the difference being due to the uncertainty as to what will be the ultimate height of the high dam of that project.

The Federal Power Commission should have the duty of determining the accounting system to be used by the operating corporation, as provided in section 303 of the Federal Power Commission Act as revised August 26, 1935. This should cover not only capital accounts but operating accounts as well. These are tasks which the Federal Power Commission has been exercising for the private utilities leasing Federal water power sites. It has a well developed accounting staff (now being organized into regional units) and is the only Federal agency free from operating responsibilities, equipped by staff and experience to do a proper job of this sort.

It seems to us wise, also, to make it the auditing agency for this and similar corporations rather than rely upon the Comptroller General's office for field audits of this kind. The latter office does not now have an auditing staff trained in this type of accounting. If the Federal Power Commission is retained, as we feel it ought to be, as a regulatory and not as an operating unit of the Federal Government, it should be able to perform this service more expeditiously and competently than the Comptroller's office, while at the same time providing the needed check upon the operations of the regional corporation. We also feel it desirable to provide in the statute creating the proposed corporation freedom from the usual restrictions as to purchases and disbursements as have been found practicable in the experience of other quasi-public corporations.

Control of the rates at which the surplus energy, over that needed for navigation, is to be sold should be given in the first instance to the corporation. It should be given the initiative in calculating the rates. It has been suggested that the Federal Power Commission should act in an advisory capacity to the power corporation on such matters. Further reflection suggests that it might be wise to endow it with a negative over proposed rates for the sale of wholesale power whenever such sales involve significantly large units or are made under contract for more than a brief period of time. Should the corporation find it necessary to make contracts for the purchase of power for stand-by purposes, such contracts should also be submitted to the Federal Power Commission for approval.

If the social benefits of cheap electricity are to be fully realized, they must be passed along to the ultimate consumers of the region. This is clearly evident from the difficult experience of the British grid system and the opposite and more favorable experience of the Ontario hydroelectric development. Therefore, it is proposed that the corporation be given the right to determine in its contracts for the sale of wholesale power the maximum prices to be charged for the same power when sold at retail. This is needed, also, to prevent discrimination between customers of the same class. The solvency of these public works is conditioned upon the increasing consumption of electric energy. To withhold the right to determine maximum resale rates would place in serious jeopardy the success of the entire enterprise.

We have stated before that the principle to be kept in mind in thinking of the operating problem for the Federal hydroelectric developments of the Columbia system is that the distribution of this electric energy is to be done in the manner which will achieve the maximum regional and national benefit by making available this energy to the greatest number of people at the lowest rates consisent with the solvency of these works.

It is the conviction of both the Pacific Northwest Regional Planning Commission and the National Resources Committee that this principle requires the adoption of a rate policy which will make wholesale energy available at similar prices over large areas. Such a policy will tend to contribute to the decentralization of new industries, the stabilization of existing communities, and should lessen the folly of competition between cities which will inevitably arise if the rates are graded in accordance with a series of distance zones with the cheapest rate at or near the generating sites. So far as the Bonneville project is concerned, this latter zone system would be peculiarly ill-advised; first, because it would encourage the use of this energy in the heart of the Columbia River Gorge, where the topography and physical environment is primarily suited for recreation purposes and not for the building of industrial cities. There already exist within the Portland-Vancouver-Longview region many towns and cities now being served by expensive governmental functions—highways, schools, sewers, fire-police protection, etc., adequate to take care of the needs for considerable enlargements to their populations. It would be exceedingly wasteful, from the point of view of public economy, to encourage the building of new industrial towns next to the site of the Bonneville Dam. From the point of view of ultimate regional cohesion and good will, a policy based upon similar rates for large areas possesses distinct advantages. As a matter of fact, this policy is precisely similar to the policy now being pursued by private utilities in the Pacific Northwest region. The Puget Sound Light & Power Co., for example, has the same rate tariff for farm and domestic service throughout its entire territory west of the Cascades from British Columbia on the north to the Columbia River on the south, except in the city of Seattle, where it has a slightly lower rate to meet the competition of the

municipal power system. Some of the energy poured into this blanket zone in western Washington comes from the generators in the plant on the Columbia River in eastern Washington at Rock Island.

We feel that the Bonneville, Grand Coulee, and future Federally built projects must be operated as regional and national assets and not as the peculiar property of the towns or cities that happen to have grown up near them.

The prior right of cities, public-utility districts, cooperative organizations, etc., to the use of electric energy should be recognized in the law and policies of the proposed organization. It is doubtful, however, if the cancelation clauses enjoined by congressional statute upon the T. V. A. for contracts with private organizations will be wise in the case of the Pacific Northwest if, as we recommend, sufficient capital is made available to the corporation to install the additional generating units at Bonneville and Grand Coulee. If and when there appears to be an approaching exhaustion of the surplus electrical energy available from those public works, and if Congress fails to permit the construction of other river projects which will afford additional sources of electrical energy, then this cancelation clause provision might become appropriate. It is extremely important for the solvent operation of the corporation that all of the energy be utilized as rapidly as possible because the corporation's capital structure must include a large share of the total cost of the dams and if only a fraction of the power capable of being generated at these structures is used, capital charges will quickly eat up all the revenues and increase the early deficits so as to menace the soundness of the entire enterprise. What is necessary, therefore, is to safeguard the power operations so that the demands of public groups and cooperatives which may reasonably be anticipated may be amply satisfied while at the same time other users may be found who will aid in achieving a full utilization of these works at an early date.

Finally, we find much merit in the suggestion that the corporation be enjoined to study the feasibility of operating its grid transmission system in cooperation with the interconnecting facilities of other public and private power agencies as a common carrier system for electrical energy. If such study reveals the practicability of that policy, it ought, with the consent of the Federal Power Commission, to take steps to put that policy into practice. It is possible, as the report suggests, that with such a conception of the use of the grid system some of the possible conflicts between the Federal power operating organization and the private and municipal generating agencies can be minimized. This is a very desirable objective.

Taxes

The report proposes that the Federal corporation make payments to the State in place of taxes upon the same basis, so far as amount is concerned, as would be the case were this a private utility enterprise. This payment should be made as soon as the operations show a net return, or, in any event, not later than a specified number of years. Owing to the injustices which frequently result from the traditional methods used in allotting tax returns from such large works, the Federal Power Commission should determine the apportionment of "payments in lieu of taxes" as between the several States at interest and among local bodies within each State in which the property of the corporation is located. It might also investigate as a basis for such allocations the desirability of distributing these payments on the principal of payments in proportion to electric energy consumed by each local body politic.

4. Recommendations

On the basis of the foregoing analysis of the report submitted by the Pacific Northwest Regional Planning Commission, the National Resources Committee recommends:

1. *Continuous regional planning.*—That a continuous regional or interstate planning activity and planning organization for the Pacific Northwest region should be provided through cooperation of State planning boards and Federal officials in the area and through continued Federal financial assistance. Assistance should be given to the Regional Planning Commission in the form of technical consultants and emergency personnel, as at present, or by loan of Federal personnel, or by other appropriate ways and means.

2. *Conservation and development of regional resources.*—(*a*) *Forests.*—That to maintain and develop the chief industry of the Pacific Northwest the policy of intensive management for sustained yields should be applied to private and public forest areas (pp. 57 to 61).

(*b*) *Water.*—That in the development of irrigation projects their economic feasibility and advantages be appraised by the Regional Planning Commission in conjunction with the Departments of the Interior and Agriculture.

(*c*) *Public works.*—That regional benefits from the great projects undertaken through interstate cooperation or the Federal assistance should be secured to the people of the whole region through appropriate Federal or interstate operating agencies.

(*d*) *Power.*—That in order to achieve the maximum regional and national benefit from the huge power resources of the region the surplus electric energy from Bonneville, Grand Coulee, and such Federally financed public works on the Columbia River and its tributaries as may be built in the future, should be made available to the greatest number of people at the lowest practicable rates.

Organization of Proposed Power Agency

We concur in the recommendation of the Regional Planning Commission that a new and separate Federal corporate agency should be established for the distribution and marketing of the power from the Bonneville Dam, and that such an agency might well consist of three members appointed by and responsible to the President (pp. 10 to 11). Such an agency, if appointed by the President, would keep to the front the social and economic purposes underlying the Government's power development at Bonneville and ultimately Grand Coulee and would secure for the whole region the benefits of this large Federal expenditure.

Authority of the Proposed Agency

We recommend that the authority of the proposed new power agency should include distribution of the power and establishment of rates to encourage broad regional use of Bonneville power. Authority should include those incidental powers concerning construction of transmission lines, purchase or condemnation of lands, and similar activities necessary to the administration of the primary functions of the proposed agency (pp. 10 to 11).

Proposed Power Policy

We recommend a policy for the sale of electricity which will make rates similar over large areas, which will pass along the economies in the prices of wholesale power to the ultimate consumer, and which will contribute insofar as may be wise to the stabilization of existing communities, the appropriate decentralization of new industries, the increase of steady employment, and the increased consumption of electric energy by farmers and domestic consumers.

Proposed Inter-connecting Power Lines

We concur in the recommendation of the Pacific Northwest Commission that a super-power or grid system of connected transmission lines should be constructed. The proposed powers and organization of the Northwest power agency are outlined in detail in the following report to the National Resources Committee (pp. 10 to 15).

REPORT OF THE

PACIFIC NORTHWEST REGIONAL PLANNING COMMISSION

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COLUMBIA BASIN STUDY

DECEMBER 1935

PACIFIC NORTHWEST REGIONAL PLANNING COMMISSION

220 FEDERAL COURT HOUSE

PORTLAND, OREG.

December 28, 1935.

Hon. HAROLD L. ICKES,

Chairman National Resources Committee, Washington, D. C.

MY DEAR MR. ICKES:

We offer you the Columbia Basin Report requested in your letter of July 9, 1935.

You will find it prepared in two sections:

1. The statement and recommendations of the Pacific Northwest Regional Planning Commission.

2. The separate and supporting analyses of the consultant staff. An appendix containing fundamental material on each subject, in the form of individual expressions, follows.

We are aware that the imminent advent of cheap and abundant power, through national aid, prompts this prized opportunity to examine the base upon which the region stands, and to propose certain procedures for the future.

Power, in the ultimate achievements of the Pacific Northwest, will be one of the resources and services indispensable in realization of our hopes and ambitions for this area. Broadly reservoired, however, and promptly accessible in the production and the processing of raw materials, governed by determined plan to serve the new and ingenious as well as the conventional requirements of our civilization, and supplied on the most favorable and tempting terms, we believe that this vivid factor will stimulate growth free of speculative orgy, and serve the needs and pleasures of the people at the rate of expanding progress.

Naturally, we are convinced that national administration, in comradeship with the agencies and the people of the region, may, with great human and material reward, fit public policy and program to the objective we here vision.

Very truly yours,

MARSHALL N. DANA, *Chairman*

PACIFIC NORTHWEST REGIONAL PLANNING COMMISSION

PACIFIC NORTHWEST REGIONAL PLANNING COMMISSION

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[1] E. A. Cox, vice chairman, actively represented board and chairman in preparation of report.
[2] P. Hetherton, Olympia, appointed consultant, effective Nov. 1, 1935.
[3] Succeeded by Sinclair A. Wilson, Portland, Oct. 8, 1935.

REPORT OF THE
PACIFIC NORTHWEST REGIONAL PLANNING COMMISSION

Contents

		Page
1.	Introduction	3
2.	Findings and recommendations	4
	Regional factors in planning and development	5
	The future of the Pacific Northwest	6
	Plans for organization	8
3.	Conclusion	15

. . . We may have gone beyond the conventional limits of inventory and appraisal in the attempt to predict the future and to recommend suitable organization. We have thought of the ultimate development of human as well as material values. We have sought to measure these values not only as the self-contained incentives of the Region, but as assets of the Nation. We have felt impelled to view the Region with reference to its importance to the Nation in the broad commercial and political considerations of the Pacific area . . . (*page 6*)

COLUMBIA BASIN STUDY

REPORT OF THE
PACIFIC NORTHWEST REGIONAL PLANNING COMMISSION

1. Introduction

The great rivers of the world have always been the key to the exploration and development of each of the regions through which they flow. But in a special sense, the Columbia River and its tributaries furnish the program for the future development of the Pacific Northwest. This report will not be of adequate usefulness unless we first place in its foreground the unique character of the Columbia River that makes its development of major importance alike to the Northwest and the Nation.

Most of the world's great rivers flow more or less sluggishly through wide alluvial plains. But the Columbia, although second in size only to the Mississippi in the United States, possesses to a striking degree certain characteristics of a mountain stream whose turbulent and swift-flowing waters have cut deeply its channel, leaving high rocky canyon walls on either side, thus creating an ideal situation for the development of a series of great power sites, by means of which the river ultimately can be made navigable for its entire length in the United States, millions of acres of high-fertility land can be reclaimed as the Nation may hereafter have use for it, and unprecedented quantities of hydroelectrical energy can be developed at low cost.

It is this unique characteristic of the Columbia that located 41.4 percent of the undeveloped hydro energy of the Nation in the sixth zone (Pacific Northwest group comprising Washington, Oregon, and Idaho) as designated by the Federal Power Commission in its national power survey.

Accordingly, Congress has taken advantage of the opportunity thus created by the River and Harbor Act, approved January 21, 1927, when it directed the Chief of Engineers of the United States Army to prepare and submit a report for the development of the Columbia River and its minor tributaries. During the succeeding 5 years the staff of the Chief of Army Engineers made a thorough and comprehensive study of the area indicated, and on March 29, 1932, the Chief of Army Engineers submitted to Congress a report, containing:

> A general plan for the improvement of the Columbia River and minor tributaries for the purpose of navigation and efficient development of water power, the control of floods and the needs of irrigation.

This "general plan" locates 10 great dams on the Columbia that utilize over 92 percent of the 1,300-foot drop of the river from the Canadian boundary to the mouth of the Columbia in a program that is the largest, most important and far-reaching plan ever developed for this region.

We must not lose sight of the fact that it is in pursuance of this general plan that the great Bonneville and Grand Coulee developments are being carried forward, one by the Corps of Engineers and the other by the Bureau of Reclamation. These constitute simply the first steps in the complete development envisaged by the general plan of the Corps of Engineers. In the recommendations of this report we have borne in mind not simply what is being done but also what is being planned to be done hereafter, looking to the complete development of which we see in the present only a part.

Furthermore, these great power sites have a marked interdependence. The Grand Coulee, the dam farthest upstream, will be the great storage dam, containing 5,000,000 acre-feet of water storage in a lake 151 miles long extending to the Canadian boundary. Each of the great sites below the Grand Coulee dam will be markedly benefited by this huge storage, and will be built in reliance upon that benefit thus created by the Grand Coulee dam. Inasmuch as these dams as a whole contribute not only to the creation of power, but, as the "general plan" of the Corps of Engineers indicates, will as well improve the Columbia River for purposes of navigation, flood control, and the needs of irrigation, it is to be anticipated that each will hereafter be built as need arises.

It is only in the light of this "general plan", therefore, and its unprecedented consequence in the development of this region that we can deal with the problem assigned to us. In carrying out this "general plan", there is to be created as an incident to its development and construction, a quantity of hydroelectric power not elsewhere available in this Nation. The influence of such a development is in all probability more far-reaching than any public work or group of public works heretofore planned or constructed by the Nation. This program is a very grave responsibility for sound initial planning that shall be equal to the great opportunities presented by such a series of projects.

The request for a report that might be helpful to the President in predicting the future of the Pacific Northwest, in identifying its regionality and in recommending the type of organization best suited to the planning, construction, and operation of public works in the region seemed, in view of the above, to be most timely. The duty was welcomed by the Pacific Northwest Regional Planning Commission.

Moreover, we have seen in the assignment a certain recognition of the Pacific Northwest as an area varied in its characteristics, yet indissolubly bound in common interest and opportunity by a great river. As has been demonstrated in other parts of the world and throughout the history of mankind, it may well prove that the application of intelligence and sound planning to a balanced program designed to bring about the development of the Columbia Basin for maximum human use may help to mark the progress of civilization.

The construction of large projects incident to the national recovery program has heightened the desirability of steps to be promptly taken for the transmission and sale of power in harmony with a regional program of social-economic progress. We think that unusual value may be added by planning and conducting such a program in a manner true to the democratic ideal by the active participation of the people of the Pacific Northwest with the agencies of the Federal Government. We further think that great impetus and benefit may be had from the decentralization and coordination, in the field, of Federal agencies for the purpose of planning and accomplishment.

We particularly feel that when public need and changing vision make the expansion of governmental functions seemingly inescapable, the planning movement, if organized upon a popular basis, tends not merely to preserve but to revitalize the spirit of democracy by providing a medium for the effective expression of opinion about things in which the people are directly and vitally interested. The movement, properly sustained and implemented, may make government more responsive to popular will even while its field of activity is expanding in response to public need. In the planning movement, democracy seems to be more or less spontaneously developing a new agency to meet an unprecedented situation.

Public Hearings

Before reaching conclusions and in order to obtain, for the guidance of the Commission and its consultants, a cross-section of public opinion and attitude, informal hearings were conducted at various points in the region, including Helena, Mont.; Spokane and Seattle, Wash.; Boise and Pocatello, Idaho; Pendleton and Portland, Oreg.

Official, commercial, industrial, utility, agricultural, forest, and transportation interests were represented at each meeting. Expressions independently given covered wide divergence of attitude, some being strongly opposed to any additional form of operating authority, others as definitely in favor. The views expressed were helpful to the Commission, and the hearings represented value in the opportunity afforded for expression, the interchange of preliminary ideas, and the awakening of interest in what inevitably must be an important subject of consideration in the Pacific Northwest during the years to come.

2. Findings and Recommendations

The principal findings and recommendations of the Pacific Northwest Regional Planning Commission may be epitomized as follows:

> The Pacific Northwest is the one large region of great promise yet awaiting full development in the United States. The region's factors of water, land, minerals, forests, and power are ample to warrant in national interest, the public works now authorized and a competent and comprehensive basic plan for public works for the entire region with a continuing program adjusted to regional and national needs and controlled by advance planning.
>
> The Pacific Northwest, with the Columbia Basin at its core, constitutes a coherent subnational region for purposes of planning, conservation, and development. For most purposes the region might be defined (with the understanding that boundaries are flexible) as Washington, Oregon, Idaho, and western Montana.
>
> Planning should be continued along organizational lines which are now established, with provision for more permanent legal basis and for effective coordination of Federal agencies and State and local government.
>
> Construction of public works should be continued, in general under the auspices of the Federal agencies and State and local government.
>
> Present and future public works should be integrated into a harmonious scheme of regional development.
>
> Federal power plants now under construction or to be constructed should be considered as units of a single integrated power system.
>
> A new operating body in the form of a Federal corporation should be created and assigned all Federal power operations.

Certain acts of Congress will be necessary to effectuate the recommendations of this report. We urge, specifically, the adoption of the bill creating the national planning board now pending before Congress, with the expectation that satisfactory relationships with regional and State with national organization may thereby be established. We urge the sub-

mission and passage of a bill creating a Pacific Northwest power agency as a Federal corporation, given power to build transmission lines, to execute contracts for the wholesale distribution of power to public and other agencies, to provide executive management, and to undertake such other tasks as may facilitate or be incident to the transmission and sale of power, and that to the power agency be allocated an adequate revolving fund for the performance of its duties.

The Regional Planning Commission's report is followed by a staff report, which includes basic material for the study, more complete analyses of the problems involved in the assignment, and, in some instances, findings and conclusions of the staff and its members. The characteristics and status of the region and factors affecting its future, a survey and analysis of regional factors and limits in the Pacific Northwest, and the problems of organization and alternative solutions are dealt with in this staff report. The staff report is also supported by appendixes (published separately in a limited mimeograph edition) which include individual articles on the various basic conditions, resources, and activities of the region. Condensation has not permitted in the Commission's own report the fuller treatment accorded in the staff report. The findings, conclusions, and recommendations of the staff report, because of their more complete treatment of important subjects, should have careful consideration and their value in subsequent discussion will become apparent. The Commission believes that it has covered in its own report, briefly at least, the major findings of the body of the staff report. Certain modifications in staff recommendations have been made which cover the principal differences in details of conclusions between staff and Commission.

The findings and recommendations of the Regional Planning Commission, in greater detail, follow.

Regional Factors in Planning and Development

The study of regional factors with particular reference to the Pacific Northwest, to supplement the national study being carried out under the direction of the National Resources Committee, has been considered of such prime importance that a considerable part of the effort in this Columbia Basin study has been devoted to it. The staff report contains as complete a survey and analysis of the subject as the limitations of time and personnel would permit. This regional study, section III of the staff report, outlines the theories of regionalism, explores the cohesive and divisive factors, and activities in the Pacific Northwest region, pursues a number of tests of the regionality and limits of the area for various purposes, and arrives at some conclusions as to the definition of this subnational area, and as to effects upon organizational arrangements for planning, conservation, and development.

The Regional Planning Commission believes, as a result of the analyses, considered in the light of its own collective and individual experiences, that the Pacific Northwest constitutes an unusually coherent subnational region. This conclusion will be borne out by a consideration of the acknowledged factors in regionality as outlined by the National Resources Committee's committee on regional study:[1]

Present accepted definition of region.
Decentralization of national planning and governmental functions.
Political divisions.
Administrative convenience.
Functional divisions.
Physiographic conditions.
Development plans and programs.
Economic structure.
Metropolitan influences.
Cultural structure.

As the research of the national committee on regional study indicates, it is extremely difficult to establish definite and fixed boundaries for subnational regions for all purposes. On the basis of rather widely accepted definitions and understandings, the Pacific Northwest in the United States includes, in broad terms, Washington, Oregon, Idaho, and western Montana. Strong ties to the Pacific Northwest and administrative convenience have led to the full recognition of the State of Montana in the Pacific Northwest Regional Planning Commission.

The region as outlined by rather general understanding harmonizes very well with economic and cultural structures, and is suited to use by many, if not the majority, of functional divisions of Federal Government. In some respects, physiographic conditions such as types of land and cover tend to divide the Pacific Northwest along different lines. It is considered, however, that these divisive influences are less cogent than generally unifying economic, political, and cultural factors. One physiographic factor tending strongly to integrate the Pacific Northwest is the Columbia River system. This influence is exerted not only through the physical ties, but through the resulting ties of economic and cultural nature, and of development plans and programs. In consideration of the

[1] Regional Factors in National Planning and Development, National Resources Committee, 1935.

physical Columbia Basin and some economic effects, the region will extend slightly into western Wyoming, and into northwestern Utah and northeastern Nevada.

Metropolitan influences, through both commercial and cultural pulls, tend in some cases to strengthen the regionality of the Pacific Northwest, and in only one important case to draw from it; Salt Lake, in relation to southern Idaho, tends to pull from the area in this way.

The Regional Planning Commission is in accord with the broad view that regions for all purposes of planning, conservation and development, and economic and social advancement, cannot be sharply defined. More specifically in relation to the Pacific Northwest region, it is conceded that Montana, as a State, must be represented almost equally in the Pacific Northwest region and in another region to the east; that for some purposes, and in some fields of planning, southern Idaho must have representation in the Intermountain region having its metropolitan center at Salt Lake. It is also conceded that for some purposes it may be desirable that southern Oregon be accorded representation in planning activities centering in San Francisco as a metropolitan center. On the other hand it is also conceded that for some purposes, notably in problems affecting the development and use of the Columbia River system, suitable representation must be accorded in the Pacific Northwest planning scheme to Wyoming, Utah, and Nevada.

The coordination of State and Federal activities in planning and development is an extremely difficult and complicated process. Continuous effort and a long period of time will be required for the establishment of a working system. Two of the larger bars to early accomplishment of satisfactory results are the lack of general decentralization of Federal governmental functions, and the lack of uniformity in administrative areas for various divisions and functions of the Federal Government. It is recognized that complete uniformity probably cannot be obtained because of the difference in essential requirements of various Federal activities. It would seem desirable and feasible, however, for the Federal departments concerned with conservation and development to consider the general requirements of regionality as well as their own special requirements in each case, and to make gradual adjustments and other arrangements to improve field coordination in planning and development.

The Future of the Pacific Northwest

We may have gone beyond the conventional limits of inventory and appraisal in the attempt to predict the future and to recommend suitable organization. We have thought of the ultimate development of human as well as material values. We have sought to measure these values not only as the self-contained incentives of the Region, but as assets of the Nation. We have felt impelled to view the region with reference to its importance to the Nation in the broad commercial and political considerations of the Pacific area.

Due to changing and new factors, quantitative estimate of the future of the Pacific Northwest is largely a matter of conjecture. It is not practicable at this time properly to weigh these new and changing factors with sufficient exactitude, to establish a formula and draw a curve of probable population as a measure of future growth and development.

The pertinent factors, however, have been considered and evaluated so far as practicable, and those favoring a considerable development found to outweigh the neutral or unfavorable factors so far as the Pacific Northwest is concerned. The factors generally favoring a rate of growth in excess of the national average are, very briefly:

Favorable physical conditions.
Ocean and inland waterways.
Natural trade routes.
Natural resources (including recreational and aesthetic, as well as the water, land, and mineral resources).
Climatic conditions.
Relatively favorable economic conditions.
New power development.
Prospective land development (including reclamation, and more rational usage of land).
Exploration and development of mineral resources.
Long time trends in decentralization of industry.
New and prospective transportation development, including inland waterways.
Growth of commerce as a result of the development of power, industry, land, agricultural and transportation facilities.
Population migrations, including some recent movement toward the region, and probable future opportunities and attractions for movement in this direction.

The interaction of these favorable factors, one upon another, is also of particular importance. For example, the development of low-cost and abundant power will affect industrial development, and, through industrial development, commercial and community development. All of these will increase markets, and increase the need of land development as well as of further manufacturing activity. Abundant power and industrial development may have a significant effect upon the development of mineral resources and upon a degree of general decentralization of industries from the northeast and from the congested centers of the country.

Trade on the Pacific, with the Orient and Alaska in particular, should be an important favorable cofactor in the growth of the Pacific Northwest when the long-time trends toward both absolute and relative increases of world trade on the Pacific are resumed.

Factors indicating a rate of growth corresponding to or less than the national average may be briefly summarized:

Unfavorable physical conditions, such as:
Lack of rainfall in localities.
Shortness of growing season in localities.
Extent of forest, mountain and other nonagricultural areas unsuitable for intensive occupation and use.
The possible depletion of certain resources such as forests, fisheries, and minerals.
Possible further crises in agriculture.
The slow growth of commerce due to world depression, political disturbances, and economic nationalism.
The flattening out of natural population growth.

These neutral or negative factors do not seem to be serious in relation to the positive factors outlined. Yet, it is possible that, without amelioration of certain present conditions and trends, some of them may largely offset the effects of the positive factors. As has been stated, much depends upon the nature and effectiveness of national policies, plans, and controls with respect to the development of power, the conservation of resources, and the stabilization of agriculture, industry, and employment. Some of the negative factors, as, for example, the depletion of timber and fishery resources may be offset in part at least by wise planning and conservational controls. The effects of depletion of mineral resources may be minimized by exploration, research, elimination of waste, and other conservational measures.

Summation of likely effects of all of the factors indicates the probability of a substantial growth in the Pacific Northwest in population, industry, commerce, and agriculture. It is believed, also, that the conditions and factors are favorable to a net growth not entirely measurable in terms of population, production, and traffic—that is, growth in per capita wealth, buying power, living standards, and public facilities and improvements.

While it is not practicable to review the various factors and probabilities in detail here, it seems desirable to evaluate quantitatively, in population increase, the possible effects of two of the more positive factors—power development and land use.

The power developments under way or prospective in the comparatively near future, if successfully used, indicate a change in the basic economy of the area from one primarily concerned with agriculture and the production of other raw materials, to one in which heavy and light industry eventually will play an important, if not a leading, part. The economy of the Pacific Northwest on such a basis obviously would not be self-sufficient, but would be sufficiently well balanced to be a greater asset than now, nationally as well as regionally.

The Commission believes that, with sound policies, and planning and development work, the new power capacity in course of provision or in early prospect for the Pacific Northwest, will be successfully used within a reasonable time. Therefore, it seems desirable and practicable to evaluate roughly the effect of power development in general terms, such as of the growth of population.

In the region (four States) as a result of the new Federal power plants under construction, and probable public-utility developments of the not distant future there will be added a capacity of about 2,500,000 to 3,000,000 kilowatts to the present 1,750,000 kilowatts of capacity. Not all of this new capacity will be used for industry. In fact, it is considered most important that much of it be consumed in domestic, farm, and other uses which tend to raise the standard of living. It may be assumed that the use of the new power capacity in industry will involve the employment of in the neighborhood of 200,000 industrial workers, and a population dependent upon industry of in the neighborhood of 600,000. It will be noted that these figures are based on only a part of the potential water power capacity which will be available ultimately. Four times as much more than that now being added will be available for the possible needs of the more distant future.

If we presume industrial development and the consequent increase in local consuming market capacity, it is desirable to evaluate the effect of probable land development. National policies for the retirement of submarginal lands in various parts of the United States, and for the lessening of congestion in industrial centers, also warrant the additional land development in the Pacific Northwest. Because of the existent conditions, such development will require irrigation, and will be measured by irrigation prospects primarily, although some additional population-supporting capacity may be afforded by the clearing of suitable forest lands, through drainage, through more intensive fertilization or refertilization, and by the use of supplementary or part-time irrigation in areas now settled. The additional irrigable area in the region is in excess of 6,000,000 acres, of which a half or more may be brought in within a generation or so. It is probable that these areas and the others mentioned will support about 100,000 additional farm families, or about 400,000 people.

Considering the possible increases in both industrial and farm populations, it will be noted that they aggregate about 1,000,000 persons. It may be assumed, also, that such new industrial and agrarian population blocks will require more than an equal number in commerce, trade, transportation, utilities, construction, governmental, and other service activities. In summary, the assumption of an increase in population of 2,500,000 people seems to be warranted, provided losses due to unfavorable factors are no greater than the anticipated natural increase of approximately 300,000 and gains due to other favorable factors not allowed for in this rough estimate.

Such losses do not seem probable if we assume that material progress will be made in the solution of national problems of resource conservation, agriculture, industry, and employment. It is believed that we must assume that the social, economic, and technologic developments of the coming generation will be such as to make desirable, and to bring about, an addition to the population of the region of the order of magnitude mentioned. It is believed, also, that anticipated national increases (even though limited) and potential migrations in the country will amply support such an increase.

The time factor in these rough estimates of the future is particularly difficult to estimate. It seems probable, however, that such a change may come about within a generation. The Commission's feeling that this may be possible is based very largely upon the belief that a combination of important factors will be favorable; upon consideration of predepression rates of growth in power use and in industry; upon the possibility of the rapid development of new industries; and partly upon the history of other regional developments under the impact of favorable factors.

Further summarizing the above, and with the qualifications noted, it seems reasonable to forecast for the Pacific Northwest a population growth of about 2,500,000 persons in, roughly, a generation.

Beyond the magnitude of development here sketched for the next generation, it seems probable that, because of the greater potentiality of power and mineral resources and the more definite limits upon agricultural resource development, the further development will show increasingly greater proportion of industrial and commercial population in comparison with rural population.

The foregoing statement of the future of the Pacific Northwest is, it is realized, very highly generalized. It is realized, also, that it is conjectural, as fulfillment depends, in large measure, upon physical, economic, and technological conditions and changes which cannot themselves be foreseen. It is believed desirable, however, to make such a preliminary estimate as a guide for planning and for procedure designed to bring about full social and economic returns for the investment in the large Federal public works, and the development, conservation, and utilization of the area's resources for regional and national benefit. If the Federal program is to be successful, plans should be made for the greater use of the resources of the Pacific Northwest by the Nation and more directly by a large segment of the national population, as well as for the greater well-being of the region's present population. Of course, plans should be made concurrently for bringing these objectives about with a minimum of error and dislocation in the region and in the Nation.

Plans for Organization

Organization for the planning, construction, and operation of public works is the subject most urgently requiring attention, and the principal necessity for the submission of this Columbia Basin report at the present time. The Commission, itself, therefore, has given its principal attention to this part of the report and to the formulation of its conclusions and recommendations as to the desirable type of organization. The conclusions were arrived at by unanimous action of the Commission and are stated as concisely as practicable. Doubting the value of categorical recommendations, the Commission has included some supporting and explanatory statements. More complete statement of the problem and conditions, and analyses of possible plans, are included in the staff report, section IV.

The conclusions and recommendations of the Regional Planning Commission are based upon:

Appreciation of the extent and complexity of activities having to do with regional conservation and development, and with public works;

Understanding of the difficulty of placing these activities under one all-inclusive organizational setup for the region; and

The desire to retain the advantages of existing organization, experience, technics, and specialization, and at the same time to provide for the development of an organization plan adequate for certain outstanding new needs and activities.

In arriving at its general conclusion that an organizational framework equivalent to the Tennessee Valley Authority is not the best suited to the Columbia Basin, the Commission felt that the agency established for the transmission and sale of power should not be financially burdened with other types of service which are incapable of direct self-support. There is the additional consideration that several types of service undertaken by T. V. A. have since been assumed by Nation-wide administrations which are already func-

tioning in this region. Further treatment of this subject is to be found in the staff report, Proposed Operating Organization, Duplication of T. V. A. not Advisable in Pacific Northwest, pages 186 to 192.

More specific findings and recommendations as to type of organization for planning, construction, and operations follow:

Planning Organization

Recommendations.—The planning function should be continued under the general plan of organization now in effect in the Pacific Northwest region.

Plans should be made and carried out for making this type of organization more effective, through—

Legislative and executive recognition on the part of the Federal Government, including—

Recognition on the part of, and establishment of routine contacts with Federal administrative departments and their field divisions.

Improved contact with all agencies having to do with administration, planning, construction, and operation of public works, and the conservation and development of resources.

A regional coordinating committee is recommended, of which the chairman of the Pacific Northwest Regional Planning Commission might be the chairman, and upon which the regional representatives of the following Federal agencies shall be appointed as initial members:

Pacific Northwest Regional Planning Commission.
Pacific Northwest power agency.
War Department.
Interior Department.
Agriculture Department.

It is recommended, further, that such coordinating committee shall have the right, from time to time, to increase its membership by adding to it representatives from other Federal agencies; and

That such coordinating committee shall be authorized to consider and work out solutions of all problems of coordination in regional development and conservation that may arise from time to time, either upon suggestion of any of its members, or through reference to it by the Pacific Northwest Regional Planning Commission, and whether such problems arise out of relationship between Federal departments or between Federal and State agencies (except in the case of the power producing and marketing function). What is needed is not so much the grant of new authority or powers as the coordination of authority that already exists in order that much greater unity of purpose and energy in execution may be displayed.

Supporting statements.—Planning, as a system and as to organization, should be built up from the bottom. An essential of planning is the dealing with natural resources, and these resources are best understood in the localities. Any attempt at national planning that leaves the localities behind tends to bring about defeat of the use of the plan when finally adopted. The necessity for decentralization of planning efforts and the building of organization and plans from the bottom toward the top, should be stressed at all times. The national planning unit should rely upon the regional planning unit, the regional upon the State, and the State upon the local unit, as largely as can be done. These principles are considered necessary in planning under a democratic system; planning cannot proceed far ahead of public understanding. Progress of the planning movement is dependent upon popular and legislative support.

Planning organization must bring about effective connection not only between the branches and levels of organized government but between government and the generally unorganized citizen. The citizen must feel that he has a real opportunity and benefit in planning. Planning, as now becoming crystallized, consists largely in bringing together Federal and State agencies of research character with private citizens particularly interested in the natural resources pertaining to the research. Thus, there is at all times a combination of thought and interchange of views between the citizens most interested in the research and the Federal and other officers engaged in conservation or development of it. This effective liaison between citizens and governmental agencies is of the essence of planning: it should be developed still further and more closely, so that the leaders in each field of resource development will feel that they are participating with the Government in plans for conservation and development. It is also of the essence of sound planning that it should constitute an active working partnership between government and private citizen.

There should be no change in the basic set-up or membership of the Regional Planning Commission. If additional Federal representatives were to be added to the membership of the Commission itself, it (the Commission) would become too much of a national organization and cease to be truly regional in character, fully representative of the States as a vehicle of popular purpose and program.

On the other hand, it is important that the Federal agencies most concerned with conservation and development and with major public works should be brought into a strong, well-defined, and effective relationship with the Regional Planning Commission. It does not seem possible that an orderly and comprehensive drainage basin or regional development will come about without positive coordination—not only

as to general plans but certain features of project plans—between the various responsible agencies.

In part, these ties may be made in the planning organization through the organization and use of divisional committees covering each of the resources. Each division might have both a chairman and a technical adviser, one of which might represent the Federal interest in that particular field. Each of these principal divisions should have continuous executive service.

Construction Organization

Recommendation.—The Federal construction functions, except for certain additions and extensions to the proposed Federal power system, should continue in the hands of the existing construction agencies responsible for various kinds of work under present legislation and practices.

Supporting statement.—It is believed that Federal construction work will be better administered and carried on if responsibility therefor remains under the administrative departments and the organized, technically skilled, specialized, and experienced bureaus or offices now responsible. The Washington State Planning Council has stated, in effect:

> Observation of the construction of the two great public works in the Columbia Basin region convinces us that the engineers of the Reclamation Bureau at Grand Coulee and the engineers of the War Department at Bonneville are each displaying a trained and expert intelligence and devotion to their great tasks that are beyond praise. It is believed that the people of the Northwest who are informed concerning the way in which these enterprises are being constructed are a unit in their appreciation of all that is being done so well by the engineers of these departments. It seems plain, therefore, that there can be no occasion for withdrawal of the construction of these projects from the supervision of these departments and that the work now in their highly competent charge should be continued by them as it has heretofore been carried on until the construction of each has been completed.

Operating Organization

Recommendations.—An adequate organization should be established for the administration of the Federal power facilities and system.

It is clearly recognized that the power developments are ancillary to the whole program of river development and conservation, but for the sake of insuring the highest efficiency and greatest benefits from the power facilities, it is recommended that these shall be placed under the administration and control of a new and separate agency which might be designated as the Pacific Northwest Power Agency.[2] (The proposed power organization is hereafter referred to as the "power agency.")

The power agency should have the form of a public corporation with the financing and other powers usually accorded to such bodies.

The board of directors of the power agency should be constituted as follows:

Three (or five) members to be appointed by the President, by and with the consent of the Senate.

It is suggested that one of these three directors should have special qualifications for the administration and management of the power system and that he should serve as a full-time officer; that one director, with special qualifications in planning, might serve at the same time as chairman of the Pacific Northwest Regional Planning Commission; that a third director, serving the power agency full time, should have special qualifications in public relations and in the fields of social and economic development.

It is further suggested that the President, with the advice and suggestion of the Secretary of the Interior and the Secretary of War, might name two additional directors to serve in part-time capacity from the Bureau of Reclamation and from the Corps of Engineers, respectively.

The following functions and powers relating to the Federal power facilities should be entrusted to the Pacific Northwest power agency:

1. Major transmission lines—planning, designing, construction, maintenance, and operation.
2. Interconnection of plants.
3. Interchange and dispatch of energy, and its measurement.
4. Design of power facilities (including the review of such design carried out by other Federal constructing agencies).
5. Development of power markets.
6. Specific planning for the further extension and development of its power system.
7. Sale of power at wholesale, from points on its transmission system, with contractual requirements that will insure that rates to the consumer reflect the economies in generation and transmission. With due regard to the interests of other public agencies which distribute electric energy, the power agency should be given power to specify the maximum resale rates of any distributor which buys all or a major portion of its electric energy from the Government corporation. The Commission specifically refers, for further elaboration, to the staff report, Proposed Operating Organization. Control of Rates and Rate Policy, pages 191 and 192.

Nothing in the foregoing is intended to suggest present or future limitation of regulation of rates by either State or Federal regulatory commissions.

[2] Alternative suggestions as to designation which have been made are: (*a*) Pacific Northwest Power Administration, (*b*) Pacific Northwest Power Commission. If the latter should be adopted it is to be understood that the Commission would possess corporate powers and a corporate charter.

8. Coordination and control of power production at Federal power plants.

9. Regulation of release of water from Federal storage reservoirs, subject to State rights and irrigation needs.

10. In connection with the sale of power, the power agency should be enabled to interchange power between Federal and other power agencies. It might, further, be given authority to interchange power between any public and private utilities under a common-carrier-service arrangement.

The power agency should be endowed with the accessory, and usual, powers, rights, and obligations of a public corporation, such as outlined below, necessary to the exercise of the primary functions above mentioned.

Capital structure, initial Federal financing, and the power to issue securities on the credit of the United States.

The right and obligation to contribute to State tax funds in proportion to the levies which are made upon similar private enterprises.

The obligation to accord to public and nonprofit agencies priority in the purchase of power.

The power to purchase and lease property for its operations and to exercise the right of eminent domain therein.

The right to make contracts and to sue and be sued in connection with the exercise of its functions.

Corporate autonomy in organization, administration, employment; financing of operations and improvements, budgeting, receipt, and disbursement of funds, auditing of accounts; execution of contracts; within the limits of its charter and subject only to the essential checks and restrictions of national policy and administration.

For further discussion of these rights and powers, attention is invited to the staff report, The Nature of an Operating Organization, page 188.

The following functions and powers should be entrusted to the Pacific Northwest power agency, in common with other agencies, or with qualifications as noted:

(*a*) The Pacific Northwest power agency shall carry on research and experimentation to widen power utilization and markets, and for this purpose shall utilize the services of, and shall cooperate with, regional and State planning commissions and other research agencies.

(*b*) The Pacific Northwest power agency shall be responsible for all recommendations as to all future proposals for power features of Federal multiple-purpose development projects, and shall obtain, as to such projects, the coordinated recommendations of the Federal agency or agencies responsible for such other purposes. Construction, maintenance and operation of dams, reservoirs, locks, irrigation, and of power plants and appurtenances, so far as practicable, shall remain with the construction agency or agencies responsible for the project.

(*c*) In view of the fact that at Bonneville and subsequent navigation and power dams, the Corps of Engineers will be operating navigation facilities, and at Grand Coulee the Bureau of Reclamation will be operating reclamation headworks, it is suggested that, in the interest of simplification or avoidance of some duplication of effort, the physical operation and maintenance of these power plants might well be delegated to these respective organizations, by the Pacific Northwest power agency. In this operating function the bureaus mentioned would be in effect the agents of the power agency.

If, in the discretion of national administration or Congress, it is decided that the physical operation of these power plants should be vested in the power agency with the view of obtaining more complete integration of the power system, full consideration should be given to the continuing interest of the Bureau of Reclamation in irrigation works and operations, the statutory duties of the War Department as to navigation facilities, and to the effects of these upon the rational division of work at dams designed and used for multiple purposes.

Supporting statement.—The matter of development and use of the power resources, with the large Federal projects at the heart of the system, is one of the highest importance. The administration of this resource is the outstanding new problem which must be solved. Unlike the instances of planning and construction, there is no existing operating agency with the necessary authorization, organization, and powers.

As stated, in effect, by the Washington State Planning Council:

> The Bonneville and Grand Coulee projects, together with the other Columbia River improvements contained in the general plan of the Corps of Engineers, have one highly significant development in common, namely, the production of great quantities of power. The distribution and marketing of this power is bound to play a foremost part in the future of the Pacific Northwest and will necessarily enter intimately into the economic life of this region. In so marketing and distributing this power, it is believed that more satisfactory and harmonious results will be obtained if from the beginning all administrative problems in connection therewith are entrusted to a single administrative regional agency—in order that the heavy investment of the Federal Government in these huge enterprises may be adequately protected, and their fullest usefulness may be made available to the people of the whole Pacific Northwest as well as of the Nation.
>
> We are not unmindful of the fact that huge present surpluses of primary power, incidental to these great land and river improvements, are being created in justified anticipation of human need, and for the purpose of bringing into effective use rich and largely undeveloped resources of this region. This followed logically the policy of the Federal Government in its great land subsidies and support of transcontinental railway construction of 50 to

COLUMBIA BASIN STUDY

ORGANIZATION & COOPERATION FOR PLANNING, CONSTRUCTION & OPERATION OF MAJOR CONSERVATIONAL, DEVELOPMENTAL & OTHER PUBLIC WORKS

OUTLINE STATEMENT OF PROBLEM

Objective of Study	Functions Involved		Principal Existing Federal Agencies Responsible For	Principal Functions and Needs Which Should Be Considered in Development of Plan for Organization and Cooperation
Plans for type of organization and cooperative arrangements for conservation, development, and economic utilization of resources of the Columbia Basin and adjoining and related territory.	Planning (including general research)	Land Resources	Dept. of Agriculture: Resettlement Administration, Forest Service, Biological Survey Dept. of Interior: Grazing, Land, Reclamation, Parks National Resources Committee	Fully recognized official agency - for general regional planning, and general research; coordination of planning of various federal and state bodies; particularly for Columbia Basin development; Representation of federal and state planning agencies in planning center.
		Mineral Resources	Dept. of Interior: Geological Survey, Bureau of Mines National Resources Committee	
		Water Resources Power	Dept. of War: Corps of Engineers (General plans for improvement for navigation in combination with power, flood control, and needs of irrigation) Dept. of Interior: Reclamation, Geological Survey Federal Power Commission Dept. of Commerce: Fisheries Dept. of Agriculture: Biological Survey National Resources Committee	Specific planning for operations, additions and betterments of large federal projects (particularly power), or for coordination thereof, where not already provided for.
		Transportation	Federal Coordinator of Transportation Dept. of War: Corps of Engineers Dept. of Commerce: Air Transportation Dept. of Agriculture: Bureau of Public Roads National Resources Committee	
		Industry	Dept. of Commerce N.R.A. National Resources Committee	
		Social and Economic Conditions	E.R.A. Dept. of Labor Dept. of Agriculture: Resettlement Administration National Resources Committee	
	Surveys, Research and Experimentation	Land Surveys	Dept. of Interior: Geological Survey Dept. of Commerce: C. & G. S. Dept. of Agriculture: Resettlement Administration, Forest Service	More general and comprehensive coordination of surveys and research.
		Water Resource Surveys	Dept. of Interior: Geological Survey, Reclamation Dept. of War: Corps of Engineers (Navigation and general surveys) Federal Power Commission Dept. of Commerce: C. & G. S., Fisheries	Coordinated and overall research in power marketing and use.
		Research in Navigation Flood Control	Dept. of War: Corps of Engineers Dept. of War: Corps of Engineers	Inland navigation research and experimentation (as by War Dept. for Ohio-Mississippi) Continuation and extension of coordinated studies of water resources conservation, economic development and use for multiple purposes (as by War Dept. under provisions of HR document 308, 69th Congress, 1st Session, and subsequent legislation)
		Research in Irrigation	Dept. of Interior: Reclamation	
		Research in Erosion Control	Dept. of Agriculture: Soil Conservation	
		Research in Minerals	Dept. of Interior: Bureau of Mines, Geological Survey	
		General Physical-Chemical - Power Research, Experimentation, Demonstration	Dept. of Interior: Bureau of Mines Dept. of Commerce: Standards (not in region) Dept. of War: Corps of Engineers Federal Power Commission (No agency with overall program or coordinating function in region)	Central laboratory facilities; Central agency for execution and coordination of physical - chemical - power research.
		Economic Surveys and Research	Many departments and agencies (No agency with overall program in region)	General social - economic studies.
		Sociological surveys and research	E.R.A. Dept. of Agriculture: Resettlement Administration (No agency with overall program in region)	
	Design and Construction	Navigation Facilities Flood Control *	Dept. of War: Corps of Engineers Dept. of War: Corps of Engineers	More complete policies for flood control More complete policies for water uses, other than navigation and flood control.
		Erosion Control *	Dept. of Agriculture: Soil Conservation Service	
		Power Facilities Power Plants Transmission Lines	Dept. of War: Corps of Engineers Dept. of Interior: Reclamation	More complete coordination of program and of design, construction, development - including harmonization of conflicting requirements for use of land and water (as agriculture, forest, grazing, recreation, navigation, flood control, irrigation, public supplies, fishery) General plan, location, layout, design, construction of power plants and transmission systems for interconnection, interchange of energy, and integrated operation.
		Reclamation Works	Dept. of Interior: Bureau of Reclamation	
		Research Facilities (General)	No provision for central laboratory facilities	Design and construction of central research facilities.
	Maintenance and Operation	Navigation Facilities	Dept. of War: Corps of Engineers Dept. of Commerce	Inland navigation development.
		Flood Control *	Dept. of War: Corps of Engineers	Flood control works maintenance policies.
		Power Facilities Power Plants	Dept. of War: Corps of Engineers (Bonneville) Dept. of Interior: Reclamation (Grand Coulee and minor plants) Federal Power Commission (Regulation)	Power production and sale policies Power rate structures. Integrated maintenance and operation of federal power plants, including connecting and transmission systems, coordinated use of water, sale of power.
		Transmission Lines	No provision for major interconnecting lines	
		Reclamation Works	Dept. of Interior: Reclamation	
		Research Facilities	No central laboratory and institute	Maintenance and operation of central research facilities.
	Finance	Conservation and Development, and Related Public Works	Bureau of Budget Public Works Administration Works Progress Administration Rural Electrification Administration Reconstruction Finance Corporation	Long-term policies for public works financing. Corporate finance for power operations, additions and betterments.

75 years ago, which furnished the Far West with transportation facilities in anticipation of population requirements, and likewise gave the great initial impulse in the development and use of the varied latent resources of this extensive territory.

The task of such administrative agency therefore calls for more than the usual processes of negotiation and marketing. It requires as well the closest relationship with, and the most alert and intelligent use of the services of, the various research and planning agencies of this region, to the end that the most thorough acquaintance be had with the rich and varied undeveloped resources of the Pacific Northwest, and the most effective application of this power to their development may be programmed.

The task of such an administrative agency is therefore not only of great importance, but it requires human skills and talents of a high order. We believe, therefore, that the choice of the personnel of such an agency should not be restricted to citizens of the Northwest, but wherever they may be found, only men of the highest qualifications should be chosen.

Selected in this spirit and with these objectives, we believe that every public and private agency relevant to the enterprise in the whole Pacific Northwest can be marshaled to cooperate in an undertaking of such magnitude, and thus insure its complete and unqualified success.

The basic allocations of cost of Federal projects to various functions or activities—as, navigation, irrigation, flood control, unemployment relief, and so on—may be determined by a temporary commission in advance of the setting up of the power corporation. In matters of this kind arising after the organization of the power agency, it should have a voice with the other major Federal departments concerned, and the Federal Power Commission, in the allocation of costs and benefits.

The Regional Planning Commission should have a definite advisory relationship to the power corporation, and the power corporation should use the facilities for general research and planning of the regional, State, and local planning organizations, as indicated.

Coordination

Recommendation.—Attention is invited to the specific recommendation under the heading of planning, suggesting the organization of a Federal committee for coordination of plans for conservation, development, and public works.

It is recommended also that the study of regional factors in national planning and development be continued both on the Nation-wide basis and on the basis of the individual regions, with the view of developing plans of procedure that may be accepted, so far as may be practicable, by the various departments concerned, and which may result in concrete steps toward improved coordination in the regions as well as in the capital.

It is recommended that definite advisory interlocks or other relationships be established between the Regional Planning Commission, other planning agencies, and construction and operating agencies. This relationship should be effective and useful in improving coordination and in the establishment of priorities and major features of conservational and developmental projects.

Supporting statement.—Proper coordination of the activities of the Federal Government in its various branches and of the States and localities in the conservation and development of resources and in measures for economic and social advancement is one of the prime objectives of planning. This is particularly true in planning for interstate or subnational regions.

The coordination of Federal activities is recognized as a problem of very great magnitude and complexity, and one for which a solution has been sought for many years. The Regional Planning Commission is strongly of the opinion that, while coordination is essential in construction and in operations as well as in planning, the greatest potential results lie in the field of planning and that steps toward coordination may be more readily brought about through use of planning organization.

It has been the repeated conclusion of the Regional Planning Commission that provision for improved coordination in plans for conservation and development through regional planning organization would constitute a considerable forward step. It was also the sense of the Regional Planning Commission's discussions that the Commission and the State planning boards should be encouraged to study this problem further, and develop means and methods for better coordination. It was also felt that the Commission should emphasize the need of decentralization of Federal planning and other functions so as to permit coordination in the field between the Federal departments, the States and the people of the region.

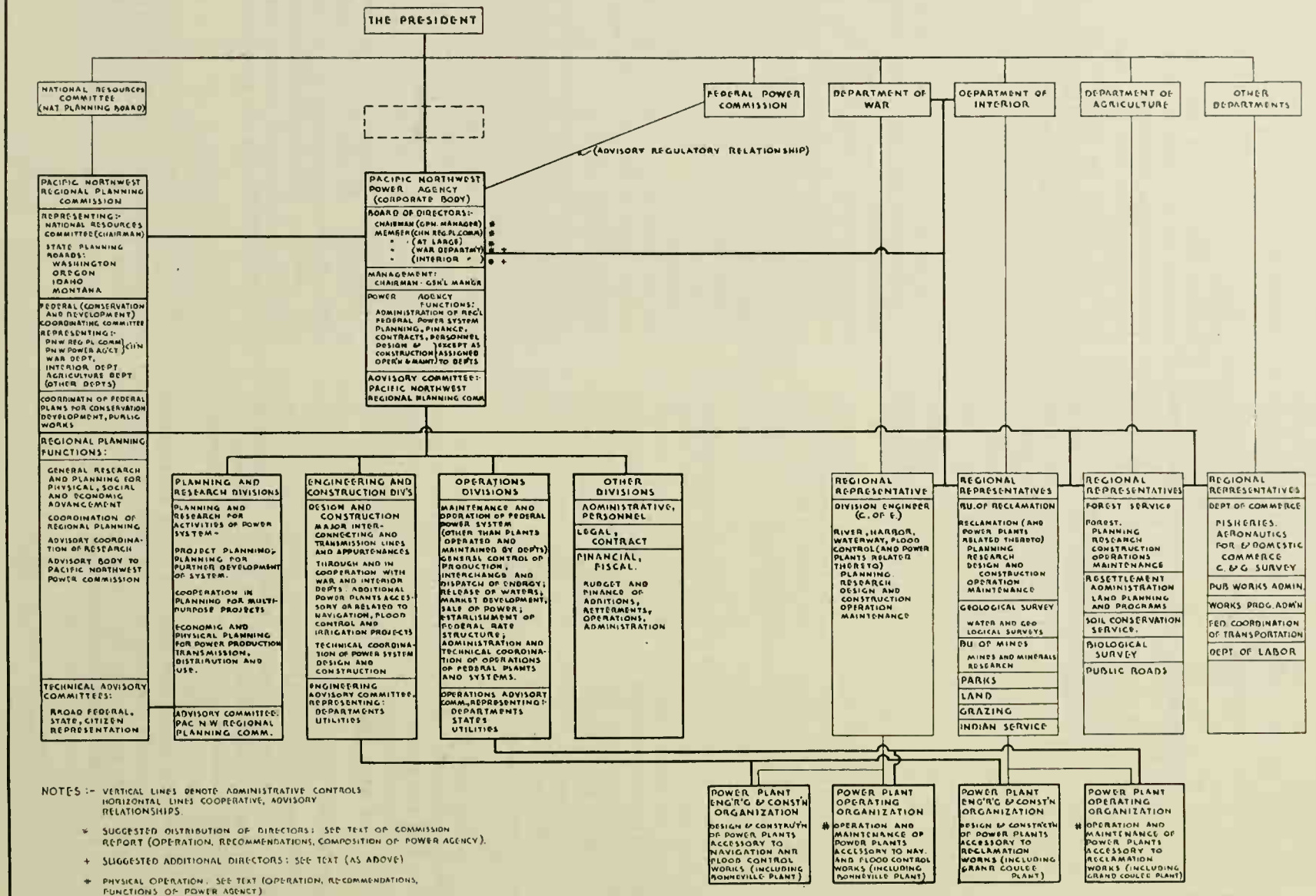
International Cooperation

Recommendations.—Further investigations, studies, and reports should be made by the planning agencies, including the proposed Pacific Northwest power agency, as to international cooperation in planning

COLUMBIA BASIN STUDY

ORGANIZATION FOR PLANNING, CONSTRUCTION AND OPERATIONS

GENERAL PLAN RECOMMENDED BY PACIFIC NORTHWEST REGIONAL PLANNING COMMISSION


THE PRESIDENT
NATIONAL RESOURCES COMMITTEE (NAT PLANNING BOARD)
FEDERAL POWER COMMISSION
DEPARTMENT OF WAR
DEPARTMENT OF INTERIOR
DEPARTMENT OF AGRICULTURE
OTHER DEPARTMENTS
(ADVISORY REGULATORY RELATIONSHIP)
PACIFIC NORTHWEST REGIONAL PLANNING COMMISSION
REPRESENTING:- NATIONAL RESOURCES COMMITTEE (CHAIRMAN)
STATE PLANNING BOARDS: WASHINGTON OREGON IDAHO MONTANA
FEDERAL (CONSERVATION AND DEVELOPMENT) COORDINATING COMMITTEE
REPRESENTING: PNW REG PL COMM, PN W POWER AGCY, WAR DEPT, INTERIOR DEPT AGRICULTURE DEPT (OTHER DEPTS) } CHN
COORDINATN OF FEDERAL PLANS FOR CONSERVATION DEVELOPMENT, PUBLIC WORKS
REGIONAL PLANNING FUNCTIONS:
GENERAL RESEARCH AND PLANNING FOR PHYSICAL, SOCIAL AND ECONOMIC ADVANCEMENT
COORDINATION OF REGIONAL PLANNING
ADVISORY COORDINATION OF RESEARCH
ADVISORY BODY TO PACIFIC NORTHWEST POWER COMMISSION
TECHNICAL ADVISORY COMMITTEES:
BROAD FEDERAL, STATE, CITIZEN REPRESENTATION
PACIFIC NORTHWEST POWER AGENCY (CORPORATE BODY)
BOARD OF DIRECTORS:- CHAIRMAN (GPN. MANAGER) *
MEMBER (CHN REG. PL. COMM.) *
" (AT LARGE) *
" (WAR DEPARTMENT) * +
" (INTERIOR ") * +
MANAGEMENT: CHAIRMAN - GEN'L MANGR
POWER AGENCY FUNCTIONS: ADMINISTRATION OF REG'L FEDERAL POWER SYSTEM PLANNING, FINANCE, CONTRACTS, PERSONNEL DESIGN & CONSTRUCTION (EXCEPT AS ASSIGNED OPER'N & MAINT.) TO DEPTS
ADVISORY COMMITTEE:- PACIFIC NORTHWEST REGIONAL PLANNING COMM.
PLANNING AND RESEARCH DIVISIONS
PLANNING AND RESEARCH FOR ACTIVITIES OF POWER SYSTEM -
PROJECT PLANNING, PLANNING FOR FURTHER DEVELOPMENT OF SYSTEM.
COOPERATION IN PLANNING FOR MULTI-PURPOSE PROJECTS
ECONOMIC AND PHYSICAL PLANNING FOR POWER PRODUCTION TRANSMISSION, DISTRIBUTION AND USE.
ADVISORY COMMITTEE:- PAC N W REGIONAL PLANNING COMM.
ENGINEERING AND CONSTRUCTION DIV'S
DESIGN AND CONSTRUCTION MAJOR INTER-CONNECTING AND TRANSMISSION LINES AND APPURTENANCES
THROUGH AND IN COOPERATION WITH WAR AND INTERIOR DEPTS ADDITIONAL POWER PLANTS ACCESSORY OR RELATED TO NAVIGATION, FLOOD CONTROL AND IRRIGATION PROJECTS
TECHNICAL COORDINATION OF POWER SYSTEM DESIGN AND CONSTRUCTION
ENGINEERING ADVISORY COMMITTEE, REPRESENTING: DEPARTMENTS UTILITIES
OPERATIONS DIVISIONS
MAINTENANCE AND OPERATION OF FEDERAL POWER SYSTEM (OTHER THAN PLANTS OPERATED AND MAINTAINED BY DEPTS) GENERAL CONTROL OF PRODUCTION, INTERCHANGE AND DISPATCH OF ENERGY; RELEASE OF WATERS; MARKET DEVELOPMENT; SALE OF POWER; ESTABLISHMENT OF FEDERAL RATE STRUCTURE; ADMINISTRATION AND TECHNICAL COORDINATION OF OPERATIONS OF FEDERAL PLANTS AND SYSTEMS.
OPERATIONS ADVISORY COMM., REPRESENTING: DEPARTMENTS STATES UTILITIES
OTHER DIVISIONS
ADMINISTRATIVE, PERSONNEL
LEGAL, CONTRACT
FINANCIAL, FISCAL.
BUDGET AND FINANCE OF ADDITIONS, BETTERMENTS, OPERATIONS, ADMINISTRATION
REGIONAL REPRESENTATIVE
DIVISION ENGINEER (C. OF E.)
RIVER, HARBOR, WATERWAY, FLOOD CONTROL (AND POWER PLANTS RELATED THERETO) PLANNING RESEARCH DESIGN AND CONSTRUCTION OPERATION MAINTENANCE
REGIONAL REPRESENTATIVES
BU. OF RECLAMATION
RECLAMATION (AND POWER PLANTS RELATED THERETO) PLANNING RESEARCH DESIGN AND CONSTRUCTION OPERATION MAINTENANCE
GEOLOGICAL SURVEY
WATER AND GEO LOGICAL SURVEYS
BU. OF MINES
MINES AND MINERALS RESEARCH
PARKS
LAND
GRAZING
INDIAN SERVICE
REGIONAL REPRESENTATIVES
FOREST SERVICE
FOREST. PLANNING RESEARCH CONSTRUCTION OPERATIONS MAINTENANCE
RESETTLEMENT ADMINISTRATION LAND PLANNING AND PROGRAMS
SOIL CONSERVATION SERVICE.
BIOLOGICAL SURVEY
PUBLIC ROADS
REGIONAL REPRESENTATIVES
DEPT OF COMMERCE
FISHERIES. AERONAUTICS FOR & DOMESTIC COMMERCE C. & G. SURVEY
PUB WORKS ADMIN.
WORKS PROG. ADM'N
FED. COORDINATION OF TRANSPORTATION
DEPT OF LABOR
POWER PLANT ENG'R'G & CONST'N ORGANIZATION
DESIGN & CONSTRUCTN OF POWER PLANTS ACCESSORY TO NAVIGATION AND FLOOD CONTROL WORKS (INCLUDING BONNEVILLE PLANT)
POWER PLANT OPERATING ORGANIZATION
OPERATION AND MAINTENANCE OF POWER PLANTS ACCESSORY TO NAV. AND FLOOD CONTROL WORKS (INCLUDING BONNEVILLE PLANT)
POWER PLANT ENG'R'G & CONST'N ORGANIZATION
DESIGN & CONSTRUCTN OF POWER PLANTS ACCESSORY TO RECLAMATION WORKS (INCLUDING GRAND COULEE PLANT)
POWER PLANT OPERATING ORGANIZATION
OPERATION AND MAINTENANCE OF POWER PLANTS ACCESSORY TO RECLAMATION WORKS (INCLUDING GRAND COULEE PLANT)
NOTES :- VERTICAL LINES DENOTE ADMINISTRATIVE CONTROLS
HORIZONTAL LINES COOPERATIVE, ADVISORY RELATIONSHIPS.
* SUGGESTED DISTRIBUTION OF DIRECTORS: SEE TEXT OF COMMISSION REPORT (OPERATION, RECOMMENDATIONS, COMPOSITION OF POWER AGENCY).
+ SUGGESTED ADDITIONAL DIRECTORS: SEE TEXT (AS ABOVE)
# PHYSICAL OPERATION: SEE TEXT (OPERATION, RECOMMENDATIONS, FUNCTIONS OF POWER AGENCY)

for the development of the Columbia River and its tributaries and the mutual advantages to be gained therefrom.

Supporting statement.—The general plan of the Corps of Engineers for the development of the Columbia and minor tributaries very properly stopped at the north boundary line of the State of Washington, although a very considerable segment of the drainage ince of British Columbia. It is plain that nature did not design a development of the Columbia River basin to extend nearly from its mouth to the north boundary of the United States, and there stop. There is very great interdependence between the lower river and the upper river. Large storage possibilities exist both in Kootenay Lake and in the upper and lower Arrow Lakes in British Columbia for water later to be used in the United States. It is apparent, therefore, that we shall have a more economical development of power if we negotiate an agreement with reference to this storage between the Dominion of Canada and the United States.

Preliminary studies along this line have been made by Dr. Carl Edward Magnusson, professor of electrical engineering and director of the Engineering Experiment Station of the University of Washington. The results of this study are published in University of Washington Bulletin No. 78, a copy of which study, entitled "A Brief on Proposed Grand Coulee Dams", is forwarded with this report. Dr. Magnusson proposes that the high water surface elevation at Grand Coulee be raised from the present proposed height of 1,289.6 to a height of 1,330 feet. The increase in regulation of stream flow is shown by Dr. Magnusson over the present proposed dam to amount to approximately 50 percent. The advantages are stated by him to be so great and the increase of cost relatively so slight that in his judgment it is of the utmost importance that plans should be made for the larger utilization both by increase in the height of the dam at Grand Coulee and by the additional water storage to be gained in British Columbia.

In the light of these and other facts having to do with the international nature of the ultimate development of the Columbia, it is apparent that it will be necessary to investigate further and to report upon the advantages to be gained by international cooperation in this field.

Likewise, interstate and intersectional problems respecting these Federal public works will arise from time to time. A regional organization of the character recommended will furnish impartial and highly useful agencies for study and facilitation of adjustment of these problems as well as of the international problem in cooperative development.

3. Conclusion

Since the earliest discovery and settlement of the Pacific Northwest, far-visioned men of the region and of the Nation have advocated the development of the Columbia for all of its uses and have predicted a great progress therefrom.

Recent steps, taken in answer to the challenge of economic emergency, tend to realize in salutary and lasting fashion certain of the earlier ambitions.

We find particular significance in the following:

1931 *Report of Army Engineers:*

> "The Columbia River offers the greatest opportunities in the United States for development of hydroelectric power. The enormous power potentialities, when fully realized, would change the economic aspect of the whole Pacific Northwest.
>
> "Judging this from background, the unprecedented size of power development on the Columbia River is merely a measure of the extraordinary benefits which may accrue therefrom."

1932 *Franklin D. Roosevelt stated:*

> "We have, as all of you in this section of the country know, vast possibilities of power development on the Columbia River. The next hydroelectric development to be undertaken by the Federal Government must be that on the Columbia River."

1933 Authorization of Grand Coulee and Bonneville projects for navigation, reclamation, and power.

1934 At Grand Coulee, President Roosevelt stated that the works authorized in the Pacific Northwest would be charged against the future as well as the present population, it being his belief that increase of population and industry would retire the cost and justify the works undertaken.

1935 The President requests report on the future of the Pacific Northwest, its regionality and the organization for planning, construction, and operation of public works, the report to indicate, within reasonable limits, the growth that might be anticipated in agriculture, industry, related services, and of population.

Incident to the above are the studies and authorizations for channel improvement of the Columbia, as part of the development of a trunk waterway system, studies and authorizations of irrigation works on the Columbia system, and the study preliminary to a report on the general program necessary for the development of the Willamette Valley, and the detailed study of Columbia Basin lands necessary to consideration of the Columbia Basin for resettlement projects.

We submit that favorable action upon the recommendations contained in this report will help to assure the further necessary and logical accomplishments in the development of the region. We believe that here is

presented not only a national asset worthy of being conserved, but an experiment of genuine significance that should be fully tested in the great laboratory of human progress.

PACIFIC NORTHWEST REGIONAL PLANNING COMMISSION

J. S. James, executive officer, Montana State Water Conservation and Planning Board, member.

B. H. Kizer, chairman, Washington State Planning Council, member.

Will Simons,[3] chairman, Idaho State Planning Board, member.

O. R. Bean, chairman, Oregon State Planning Board, member.

Marshall N. Dana, district chairman, National Resources Committee, *chairman.*

R. F. Bessey, consultant, district no. 11, National Resources Committee.

[3] Mr. Simons was represented by E. A. Cox, vice chairman, in later conferences and in preparation of the Commission's report.

Contents

	Page
Section I.—Digest	19
Section II.—The Region: Its Resources, Problems, and Needs; and Its Future	29
Section III.—Definition and Regionality of Pacific Northwest or Columbia Basin	95
Section IV.—Plans for Regional Organization	133

. . . Fundamentally, however, they (proposals for the development of drainage basins in various parts of the country) denote a growing recognition that broad problems of conservation and development involve whole river systems and that great public benefits are to be derived from coordinated development and control of many uses of water. . . . In the Columbia Basin the situation has become more urgent because two very important units in the river development are actually under construction. . . . (*page 20*)

44831—36——4

STAFF REPORT—SECTION I
DIGEST

Contents

	Page
1. Introduction	20
2. Synopsis	22

STAFF REPORT—SECTION I
1. INTRODUCTION

In the Seventy-fourth Congress, first session, a number of bills were introduced for the purpose of providing for the development of drainage basins in various parts of the country. No doubt, many of these proposals were the direct outgrowth of the establishment of the Tennessee Valley Authority in 1933. Fundamentally, however, they denote a growing recognition that problems of conservation and development involve whole river systems and that great public benefits are to be derived from coordinated development and control of many uses of water. Evidence of this recognition is to be found in the comprehensive surveys of river systems authorized by Congress in House Document No. 308, Sixty-ninth Congress, first session, and in subsequent river and harbor legislation.

Among the legislative proposals which were recently considered, were several which would have established Federal Government corporations of various composition and powers,[1] to operate in the following drainages: Columbia River, Connecticut River, Merrimack River, Wabash and White Rivers, Arkansas River with White and Red Rivers, and in the Tennessee Valley (extension of area and functions). Other bills would have provided for Federal participation in drainage-basin development of the Missouri River Valley, the Sacramento and San Joaquin Valleys of central California, and the Arkansas-Red-Ouachita-White River Valleys. The last session of the Utah Legislature considered a proposal for the establishment of a (Utah) great basin authority. Proposals for the development of the international section of the St. Lawrence River have been before Congress for a number of years.

In the Columbian Basin the situation has now become more urgent because two important units in the river development are actually under construction as part of the great public works and emergency relief effort which was launched in 1933. The Bonneville navigation and power project located near the head of tidewater on the lower Columbia will be completed in about 2 years, or late in 1937. This dam, designed and being constructed under the supervision of the Corps of Engineers of the War Department, will provide slack water for inland navigation to The Dalles, 45 miles above Bonneville and 188 miles from the sea. The channel thus provided will accommodate, after certain dredging has been done, ocean-going vessels with a draft of 26 feet. The power plant to be built will have an initial installed capacity of 86,000 kilowatts (in two units) and an ultimate capacity of 430,000 kilowatts (10 units). The Grand Coulee reclamation and power project located in north-central Washington is being constructed under supervision of the Bureau of Reclamation of the Department of the Interior. Upon completion, this development will provide for the irrigation of approximately one and a quarter million acres of land in the fertile Columbia Basin. It will so regulate the stream flow that it will greatly increase the firm power output of downstream power plants, including Bonneville, improve navigability of the river during low-water season, and, to some extent, control flood waters. The ultimate power capacity of the Grand Coulee generating station will be about 1,890,000 kilowatts. Pending the formulation of a definite program for the complete high dam structure, the probable time of completion cannot be stated. It is possible, however, that units for power or for irrigation might be brought into operation within 5 or 6 years.

Other Federal public works activities in the basin include a large number of reclamation projects throughout the four States, extensive navigation improvements on the lower Columbia, and the extensive river surveys which are still under way. The Federal Government has a large permanent interest in the basin through its ownership of the national forests, national parks, and other public domain.

In view of these conditions, it obviously had become necessary that broad-gage studies should be undertaken and plans formulated for the efficient integration of these new projects. Several things should ultimately be accomplished: The Federal investment should be adequately protected with assurance of the largest reasonable economic return; provision should be made for further additions and improvements as these become necessary; all the Federal activities should be harmonized to provide both for conservation of resources and for the greatest possible degree of economic and social development within the region. These problems have been before the Regional Planning Commission for some time and were outlined in the progress report for its first year's work.[2]

[1] See "Regional Factors in National Planning and Development", John M. Gaus et al, National Resources Committee, 1935.

[2] Progress report, January 1934–January 1935, Planning in the Pacific Northwest.

The first definite step toward the preparation of this report was taken on July 9, 1935, when the Honorable Harold L. Ickes, chairman of the National Resources Committee, wrote to the Pacific Northwest Regional Planning Commission, saying in part:

> The National Resources Committee has been requested by the President to submit a report on the future of the Columbia Basin, which he is hoping will be helpful in determining the type of organization which should be set up for the planning, construction, and operation of certain public works in that area.
>
> The committee desires the assistance of the Pacific Northwest Regional Planning Commission for this work and requests your cooperation in securing a report for action by the advisory committee in Washington not later than November 1, 1935.

Later instructions from the National Resources Committee suggested that the study include a review of the assets of the region and analyses, largely from the viewpoint of the political scientist, of the problems of planning, construction, and operation of projects having more than intrastate significance.

The Regional Planning Commission accepted responsibility for the preparation of such a report. Provision was made for the selection and appointment of a number of special consultants and assistants to augment the regular consultant staff. This special staff was chosen to cover the study of regionality, power, engineering, economics, and government. Various phases of the study were assigned to the members of the consultant staff according to their special knowledge and experience. Charles McKinley supervised the work in the fields of economics and public administration; H. V. Carpenter directed the studies concerning land resources, transportation, industry, and power; Joseph Jacobs contributed the studies relating to water resources, conservation, and public works. The complete list of staff members is included in the fore pages of this report.

In addition to the staff mentioned above, additional draftsmen, stenographers, and typists were employed temporarily by the National Resources Committee. Some further engineering, statistical, drafting, and clerical assistance was provided by the Oregon Emergency Relief Administration under the continuing project for regional and local planning sponsored by the Regional Planning Commission.

The formulation of general policies for conducting the study and general review of the work during its progress was the function of the Regional Planning Commission. Pressure of time, however, has prevented complete review of the text of the staff report by all members of the Commission. Executive direction of the work was in the hands of the chairman and the consultant.

The regular consulting staff of the Commission, including the State consultants, advised the Commission, and assisted in the review of material and the preparation of sections of the staff report.

In addition to the work performed by the Regional Planning Commission staff, various contributions were made by Federal departments whose activities are especially relevant to phases of the general problem here considered. Col. Thomas M. Robins, Corps of Engineers, United States Army, division engineer, made available the data in his office, and assigned Frank Kochis, engineer, to act in a liaison capacity between his office and the special staff. Dr. Elwood Mead, Commissioner of Reclamation, designated J. S. Moore, superintendent, to act in a similar capacity for the Reclamation Service. C. J. Buck, regional forester, Forest Service, Department of Agriculture, arranged for the preparation of a memorandum giving pertinent information concerning the forest resources. H. E. Selby, chief of the land-use planning section, region XI, Resettlement Administration, has given counsel to the staff on land matters.

Pressure of time has made it impossible to give a full treatment to several deserving phases of this study. It has also been difficult to combine the various contributions into a single perspective.

STAFF REPORT—SECTION I
2. SYNOPSIS

The staff report is in two general divisions—a main report which covers the principal requirements of the assignment of the National Resources Committee, and an appendix which includes the basic data in greater detail. The appendix is published separately in a limited mimeographed edition.

Section I of the main report is an introduction, with synopses of sections II, III, and IV, and of the appendixes:

Section II. The Region; Its Resources, Problems and Needs, and Possible Future Development

This part includes a summary of determining physical conditions, such as physiography and climatology; a brief catalog of the more important natural resources: water, land, forest and mineral; sketches of the present transport facilities and of the state of commercial and industrial development. There is some forecast as to the possible trends of expansion and of the relation of public works to such expansion. In the background of the technical discussion, there has been an endeavor to keep in mind the ideal of an enriched social life for all the people of the region.

For convenience in making this study and report, the Pacific Northwest Regional Planning Commission has selected the whole of its province, which includes the States of Idaho, Montana, Oregon, and Washington. Practically all of the drainage area of the Columbia River, outside of Canada, lies within those States. Each of them has a vital interest in the development of the river.

The four States cover nearly 400,000 square miles, over 13 percent of the continental United States, but they have less than 3 percent of the population. In large areas throughout the region there are land, water, mineral, and agricultural resources which would readily support a much greater number of people at a high standard of living. The great variations in physiography and climate, together with a plentiful supply of water, provide the opportunities for development along many diversified lines of industry and agriculture. There are a number of locations admirably suited to the growth of great urban communities. This is especially true of the Puget Sound area and of the lower Columbia, including the Willamette Valley.

The water resources are the key to the future development of the region. The rivers possess an approximate 16 billion kilowatts of potential hydroelectric power. Of this amount, two-thirds is in the Columbia Basin and three-fifths is within 150 miles of tidewater. Ultimately, trunk inland waterways may be provided for river navigation 500 miles into the interior and an equal distance north and south through the intracoastal region west of the Cascade Mountains, which now contains the more highly industrialized section. In the four States there are about 6 million acres of land which can still be brought under irrigation at a reasonable cost. Of this amount 5 million acres lie west of the Continental Divide and a half million acres lie west of the Cascades. Along with these positive uses of water, there is also a vital interest in flood-control and flood-protection problems of growing importance in a number of streams and districts in various parts of the region.

The waters also supply great quantities of food fish for an industry which ranks high in its economic importance. The fisheries are dependent in large part upon the Columbia and north Pacific coast rivers. In spite of pressures to improve such rivers for navigation, power, and irrigation, great care must be taken to preserve and to increase the supply of the important food fishes. Industrial and urban development constitute another menace to fish life if river waters are polluted with sewage and industrial waste. The recreational values of waters must also be considered and conserved.

Closely related to the problems of water utilization and control are the problems of land use. The greater stabilization and further expansion of agriculture is dependent upon irrigation; this is true to a considerable extent even in the more humid zone west of the Cascades. The replacement of increasingly submarginal dry farming in certain arid parts of the region by a stable and balanced range-and-irrigated-valley system is directly contingent upon a broad program of large and small water-conservation projects. In order to improve grazing upon the public domain and related lands in the area east of the Cascades, it will be necessary to make better provision for water conservation; conversely, the rational management of grazing will have beneficial effects upon soil conservation and stream flow.

The forests comprise another resource whose industries are partly dependent on the development of the streams for navigation and power. The importance of the lumber and other wood industries in the econ-

omy of the region is indicated by the fact that one-fourth of the people are dependent upon these for their livelihood. The forest lands of the region cover more than 90 million acres and contain more than one-half of the remaining marketable timber in the United States. Under the present policies and practices the forest resource will be depleted within a few decades. It is most urgent that sustained-yield management shall be substituted for present wasteful methods of exploitation. The converse relation of forests and forest cover to the flow of streams is obvious enough and so is the consequent bearing upon power developments, navigation, and water conservation.

The mineral resources of the region have played a particularly important part in its development. The most important metals have been gold, copper, silver, and lead. There is a wide diversity and an abundance of mineral deposits throughout the Pacific Northwest, precious and basic metals, metals of strategic value in the metallurgical industry, and nonmetals important in the chemical, electrochemical, and construction industries. Many of these minerals will have important relationships to power and industrial developments. One difficulty confronting the industry at present, aside from the effects of economic depression, is a lack of suitable maps or mineral inventories. The crude methods of early prospecting need now to be supplemented by modern techniques of mineral exploration which are based upon the general geological evidence and not upon hit-or-miss search.

In its pro-rata contribution to the national total of "value added by manufacture", the Pacific Northwest makes a rather poor showing. It contributes less than 2.13 percent, which is at least one-fifth (2.8:2.13) below what should normally be expected. If it were not for the fact that in forest products the value added by manufacture is far above the normal, the deficiency in manufactures would be still more marked, or one-half below normal (2.8:1.33). Industrial expansion more adequately to meet the needs of the region is linked definitely with the development of low-cost power and water navigation. Commerce and all the distributional activities are just as intimately related to transportation, power, and irrigation.

The improvements on the Columbia River have important mutual relationship with the transportation systems. Low-cost transportation is essential if the power facilities are to be fully used in an expanding industrial development, and the costs of ocean and rail transport without the region are just as important. This calls to mind the wide and unfavorable discrepancy which exists between ocean freight rates to intercoastal ports and the rates which are offered for shipments to foreign ports. In any efforts to lower transport costs, however, it will be poor economy to force one carrier into bankruptcy by developing another. There is need for a greater integration and less disastrous competition between highway, rail, and water.

The Pacific Northwest has a wealth of magnificent natural playgrounds and other fine facilities for recreation. Every mood of nature is made evident somewhere within the region and care must be exercised to see that these treasures of aesthetic value shall remain unsullied. The various dams and new irrigation developments call attention to the need for planning, preventive as well as constructive. It is especially important that the Columbia Gorge and the Puget Sound area shall get careful attention. Industry is most likely to mar the landscape in these areas, and it is just these that are most readily accessible to the larger industrial populations. Montana and Idaho have parks and forest areas especially suitable for summer vacations.

Public works and the construction industry generally, e. g., road building, have in this region supported a larger proportion of the population than in the Nation at large. A continuing public-works program of considerable magnitude will be required if the resources of the region are to be properly used to the advantage of the people of the Nation. Because of its interest in water development, its very important interest in public lands, and its determination to lay the foundations for permanent economic recovery, the Federal Government will play an important part. Studies, plans, and well-considered policies are essential. Planning, finance, construction, and operation need to be a coordinated activity of all the various agencies concerned.

The trends in population growth and its various changes are discussed later in section II. It was obvious that forecasts made upon the present tendencies alone could not justify an increase much beyond a million for the period to 1960. The many factors contingent upon the successful operation of irrigation, power, and transportation in the great public-works program leave room for much uncertainty. There are still other, more extraneous factors, which are controlled by national policy, e. g., expanding world trade as against the present economic nationalism trend, agricultural adjustment, industrial decentralization, unemployment relief, and rural resettlement. With the most favorable blending of all of these factors, it is conceivable that the population of this region could be increased to 6 million by 1960. If standards of living can be increased and unemployment decreased at a rapid rate, the population increases will come largely as a matter of course.

The magnitude of these new improvements and the resulting changes which will come therefrom are both impressive evidences that far-seeing planning is required by all the national, regional, State, and local agencies. Some of the most urgent needs in policy and action which emerge just now are these:

(*a*) The establishment of a strong corporate administration which will provide for the interconnection of the Federal power plants and for the transmission and marketing of the electrical energy which will be generated.

(*b*) The continuation of the land use planning program with adequate attention to irrigation development.

(*c*) The continuation of a program of agricultural adjustment and for the betterment of farm life.

(*d*) The improvement of the organization for planning, including closer cooperation in the design, construction, and operation of multipurpose projects.

(*e*) The continuation of Federal participation and aid in public works.

(*f*) The continuation of inland-waterway development.

(*g*) The coordination of transportation.

(*h*) The conservation of the forest resource through sustained yield management.

(*i*) The adoption of national policies which will encourage industrial decentralization.

(*j*) The pursuing of a national policy which will favor the revival of a sound foreign trade.

Section III. Pacific Northwest Regionalism and a Regional Boundary

The material thus presented has a bearing upon regional organization for the planning and administration of public works, but it is also offered as a contribution to the Nation-wide study of regionalism which is being carried on by the National Resources Committee.

A region is an area smaller than the Nation, larger than a single metropolitan community, which possesses similar natural resources and physical-economic problems which Government planning may aid in solving. Its people must have a sense of regional community interest strong enough to permit continuous planning. Its boundaries need to be drawn so as to facilitate political action; this means that wherever possible it shall embrace whole States and counties.

The distribution of forest, water, and mineral resources points toward a boundary including most of the four States now under the purview of the Pacific Northwest Planning Commission rather than a new tripartite division as suggested by the National committee on regional study. Tests of homogeneity point, on the whole, in the same direction. These are (1) the past and present influence of the Columbia River and its tributaries as a unifying force, (2) the wide distribution of similar agricultural activities on both sides of the Cascade Range, (3) the importance of lumbering to both eastern and western Oregon, western Washington, Idaho, and western Montana, (4) the localization of differences in the agricultural pattern both east and west of the Cascades, (5) the intercourse revealed by the flow of motor vehicles on east and west lines, as well as north and south, (6) the flow of banking deposits on similar lines from western Montana, north and central Idaho, eastern Washington, and eastern Oregon to the larger banks in the coast cities, (7) the similarity of religious affiliation except for parts of western and northern Montana, southern Idaho, and a smaller portion of southeastern Oregon, (8) long-distance-telephone messages showing strong east and west ties, although the coast influences do not penetrate much beyond Spokane, and Salt Lake City dominates southern Idaho telephonic intercourse, (9) the circulation of metropolitan newspapers showing wide influence of Portland, Seattle, Spokane, and Salt Lake through the region, with the latter confined chiefly to southeast Idaho, and (10) the absence of distinct political opinion patterns between the eastern and western halves of Oregon and Washington as disclosed by votes on initiative and referendum measures.

These quasi-objective tests of homogeneity are reinforced by consideration of cultural history, which points to a complicated pattern of differences for minor rather than regional areas.

The present boundaries of the Pacific Northwest Regional Planning Commission should be modified ultimately by withdrawing from its general jurisdiction most of Montana east of the Continental Divide, and part of southeast Idaho. In the case of Idaho, all questions relating to the water resources of the tributaries of the Columbia are of concern to the entire State; but other planning problems for southern Idaho need to be considered in their regional aspects by the proposed intermountain regional commission. Flexibility for meeting needs overlapping into other regions can be attained by special coordinating devices operating within and between the local, State, and regional planning commissions.

The chief threat to the growth of a sense of regional community is the competitive business struggle between city and city, small town against big town, one irrigated district against another. This may be moderated by the rate policy adopted by the Federal Government in distributing the energy from Bonneville, Grand Coulee, and future public works.

Section IV—1. Organization for Planning in the Pacific Northwest

Any organization for the planning of future public works and for the conservation and development of natural resources must be built upon the foundations laid during the past 2 years. Regional planning is so closely tied to State and local planning that the experience on all three levels must be reviewed.

This review indicates certain variations in emphasis of planning work among the four States, with Montana and Idaho particularly concerned with water conservation and development, while Oregon and Washington have placed more stress on flood control, power development, and new irrigation enterprises. The conservation of forests and soils has received considerable attention, while mineral conservation has not been stressed. Basic research in land classification has been well started. Considerable effort has been devoted, particularly in Washington, to research, looking to the exploitation of such resources as aluminum, and other metals, agricultural products, and the creation of new power markets.

In the realm of "social planning" effort has been chiefly centered on "plans for planning", and the reorganization of certain phases of State administration. All agencies have taken part in finding Public Works projects valuable for work relief of the unemployed. No important work has been accomplished in the field of industry and commerce looking toward a better industrial balance.

One of the more recent phases of planning activity is the creation of county planning commissions, and, particularly in Idaho, of intercounty planning units. Local commissions thus far have devoted their energies chiefly to Public Works projects; but there are signs of an appreciation of basic long-time planning.

The Regional Planning Commission has devoted most of its efforts to the coordination of planning activities among the four States, but has not been able to achieve its objectives, primarily because of lack of necessary funds. Its efforts to coordinate the planning work of Federal departments operating in the region are handicapped by the absence of a proper status and by the lack of representation on the Commission from the more important Federal bureaus. It has undertaken, itself, only one major physical planning enterprise, namely, the Columbia Gorge study. Its annual regional conferences have been of value chiefly for their effects in public understanding, participation, and support.

Since planning cannot go much further than public opinion will accept, certain limitations in the scope of planning activity in the Pacific Northwest must be recognized. Already there is some slackening off of interest manifest toward those elements of planning which look toward a broad social objective. Beneath the transitory changes in public mood, there are certain underlying, permanent, traditional attitudes which characterize the thinking of the people in the Northwest. Among those which furnish rootage for planning activities is the interest in conservation of natural resources. At the present moment this interest is most pronounced with reference to water; but there is sound basis for conservation activity in the fields of forestry and fisheries, and probably for soils. There is a cross-current of opposition to conservation coming from the pioneer tradition, which is still very strong in the Northwest. Popular opinion supports planning concerned with the exploitation of resources, particularly the new electric power resources. Interest in land classification and use, while new, is already widespread. Other phases of physical planning, such as transportation, will be accepted by the public. Planning for the construction of public buildings is a new function not yet well established in public opinion. In what may be termed "social planning", a much more limited basis is found.

The interest shown by some of the State planning boards in administrative reorganization will have doubtful support, though it may make headway in certain limited fields.

Up to the present, the State legislatures have, on the whole, been acquiescent to the planning idea. Thus far planning has been attached to the New Deal, which certain of the Governors have felt inclined to support. Recognizing this somewhat precarious situation, the planners have felt constrained to spend much effort to sell the planning idea. Should planning enter the fields of public finance, social insurance, or industrial relations, planning is likely to run afoul of both legislative and popular opposition. Accepting these limitations on planning functions, there is still left an area of genuine importance, namely, conservation of resources and physical planning. The Resettlement Administration may encourage interest in social objectives within the region, and the distribution of electric power may be handled in such a way as to facilitate the attainment of broad social objectives. In so doing, these activities would constitute permanent stimuli to popular regional thinking in new directions.

Planning organization should be based upon the nature of planning functions. The composition of planning boards and staffs should depend upon the tasks undertaken. If expansions occur in the field of social planning, board and staff memberships need to be selected with a view to competence in those directions. The present membership of State planning boards is

one of unusually high quality. In most cases men have been chosen for their wide grasp of the problems of the State, and without primary reference to politics. Limited recognition has been given to territorial claims for representation. Very few State officials are on these boards, perhaps, because, with conspicuous exceptions, they have been lukewarm toward the planning movement. This is in direct contrast to most of the officers representing the Federal departments within the region. They have been very effective and cooperative.

The Pacific Northwest Regional Planning Commission is made up of the chairmen of the four State planning boards and one member selected by the National Resources Committee. There is evidence that this preponderant representation of State entities has not produced at all times a balanced regional view of problems nor the integration of the national policy with that of the region. On this account the Regional Planning Commission should have in its structure a larger representation which could reflect the national planning board point of view within the region. There is also need to give representation in some effective way to the major Federal bureaus concerned with planning problems that operate within the region.

Since the regional planning organization is partly an expression of the need for a body politic intermediate between the State and Nation, partly an expression of the inappropriateness of existing State boundaries, and partly an outgrowth of the federalizing tendencies requiring closer articulation between State and national activity, the structure of the Commission and its committees should be designed to serve these purposes.

The technical advisory committees set up by the State and regional planning commissions are the chief instruments for research and the formation of programs for action by the boards. The main outlines of this committee organization are much the same throughout the region. In all cases the boards are understaffed for the volume of work they are expected to do.

The Regional Commission's technical advisory committee organization parallels that of the State boards, but has not been able to function with desired effectiveness because of the lack of funds with which to pay travel and secretarial expense. The regional staff needs marked enlargement to do its work properly. The work of the Chairman has thus far ben centered principally upon promotional and organizational activity. The time is nearing when a shift of emphasis should be made which will permit the Chairman to give increasing attention to the general direction of planning and to the integrating of national with regional planning.

Regional planning is not complete without consideration of the national interest in the region. This is particularly true of the Pacific Northwest, where the Nation has large sums of money invested in public works and where its own domain covers enormous sections of territory. The region also has need for a strong national planning agency in order that its regional interests, which call for national action, may be effectively represented at the National Capital. The planning staffs of State and regional boards also need the assistance of a national planning agency in learning quickly about planning experience throughout the Nation. They are workers in a new field and need the benefit of some form of in-service training, which should be supplied by the national planning organization.

Regional technical advisory committees should be articulated with similar national technical committees during the time when similar research is being carried on simultaneously. On the whole, this articulation has not been present. Streams of policy proposals resulting from such committee research should pour in each direction systematically to the proper boards. There should also be a two-way movement of recommendations and proposals between the regional commission and the National Resources Committee.

Section IV—2. Organization for the Construction of Public Works

Popular sentiment in the region has a high regard for the efficiency with which major Federal public works are being built. However, it is desirable and possible to secure better coordination for the design of multiple-purpose river works through a special coordinating board.

Public works planning cannot move much faster than the general planning movement. It is only in recent months that the latter has been sufficiently strong to begin to make headway in that field. The advisory function given planning boards under P. W. A. and W. P. A. has not been exercised fully, partly because of the lack of basic planning data and partly because of the sense of insecurity under which general planning still labors. The regional planning commission is without any real advisory status on regional works, although it has volunteered advice on a few occasions. The continuance of unemployment points toward a continuation of public-works activity, and this requires a strengthening of planning activity all along the line.

Before wise judgments can be reached, two Nation-wide studies are needed: (1) The construction organization and experience of existing Federal departments, and (2) the lessons revealed by the history of P. W. A. and W. P. A.

Section IV—3. Organization for the Operation of Public Works

The outstanding question is the kind of organization to be set up for administering the generation and transmission of electric power which will flow from Bonneville, Grand Coulee, and future works on the Columbia River and its tributaries. There is a subordinate question of coordinating the operating agencies handling the other water functions.

The basic tests for a desirable operating agency are:

1. Unified management of the primary function (of generation and transmission).
2. Securing the administrative talent adequate to obtain the maximum social advantage.
3. Responsiveness to regional sentiment and desire.
4. Maximum protection of the national interest through attention to the business requirements.
5. The articulation of the operating agency with regional planning.

The proposal to permit the agency constructing one of these public works to operate it after completion means essentially a division of the operating function between the Corps of Engineers and the Bureau of Reclamation. This plan would violate the need for unity of management. We are particularly concerned to secure unity of management for the power which will soon be ready for market at Bonneville and a little later at Grand Coulee. One operating agency should be entrusted with the planning, design, construction, maintenance, and operation of the major transmission lines, interconnecting plants, of interchange and dispatch of energy and its measurement, of the design of power facilities, of the development of power markets, the sale of power, of the planning for further development of power systems, power production, control, and the release of water from Federal storage reservoirs. While other activities might be shared with a second or third agency, unification of management to handle the listed functions above is fundamental. For attainment of these purposes a single agency must be given the operating task.

There are three possible choices that the form of such an agency may take:

1. A bureau.
2. A public corporation.
3. A commission.

The Bureau form is much less advantageous for the management of what is essentially a major business operation than is a public corporation. Likewise, a commission would be disadvantageous unless it were given powers tantamount to those of a corporation. Partly on account of this conclusion, it is inadvisable to impose upon either the Bureau of Reclamation or the Corps of Engineers the operating task. There are certain other reasons which fortify this judgment. Were the Bureau of Reclamation selected, it would have the disadvantage of a major interest in agriculture rather than in the electric-power business, which is the essential function for an operating agency. It would also have the disadvantage of a very highly centralized organization which has developed in connection with its reclamation function, but which is not suited to the power operating task.

The Corps of Engineers, while already possessing wider jurisdiction over river developments than the Bureau of Reclamation, is also primarily concerned with functions other than power generation and distribution. It is, moreover, an organization commanded by a branch of the military establishment. This seems peculiarly inappropriate for the performance of a great business civil function.

In proposing a public corporation for operating purposes, the conclusion is reached that such a public corporation need not duplicate the scope of the Tennessee Valley Authority. This is true because not only of the essential differences between the two regions but because certain functions which the Tennessee Valley Authority has undertaken have now been extended on a Nation-wide basis by recently created national agencies, namely, the Soil Conservation Service, the Resettlement Administration, and the Rural Electrification Administration. While the Pacific Northwest has certain difficulties ahead connected with the conservation of forests and minerals, it is very doubtful if these could be solved by a corporation possessing powers comparable to the T. V. A. There is an additional reason for not copying the T. V. A.—that is the difficulty of securing directing talent adequate to so many different major functions as the T. V. A. has undertaken.

A public corporation is proposed, which should be created by Congress and owned by the Federal Government. It would be directed by a board, preferably, of three members, appointed by the President.[3] Two of these directors should be, at the same time, members of the regional planning commission, one being chairman of the latter. Their functions would be somewhat different from those of the directors of the T. V. A., the chairman being the only full-time paid officer, and actual management being entrusted to paid employees.

The Regional Planning Commission should occupy an advisory status to the corporation in order to facil-

[3] Recommendations of Charles McKinley, consultant. The Regional Planning Commission recommends in its report a modified composition of the board. See p. 158.

itate research and planning work and the negotiations of interstate and international compacts which will ultimately be needed for allocating the waters of the river system.

A special allocation board should decide the proportionate costs, chargeable to power, set up on the books of the corporation as an investment item. Added capital for building transmission lines, substations, etc., should be supplied initially from the Federal Treasury. The sum of $50,000,000 is suggested. The accounting system of the corporation should come under the scrutiny of the Federal Power Commission. The powers of the corporation should include the right to purchase land adjacent to the structures and the other usual power of a public corporation.

The construction of future dams should be left either to the Corps of Engineers, the Bureau of Reclamation, or such other agencies as the President may designate.

Auditing service should be done by commercial auditing firms. The corporation should pay taxes in the region comparable to those paid by private utilities. It should have the power to determine the rates for the sale of wholesale electric energy and to fix maximum resale rates. A blanket rate system should be used like that now in operation for the private utilities in the region. The States, counties, and municipalities, and nonprofit cooperative organizations should have prior right in the purchase of power.

It may be desirable to operate the high-tension transmission system as a common-carrier system of electric energy. This should be examined by the directors of the corporation after it is organized.

Appendixes

The appendixes of the report comprise a series of special articles with supporting charts, maps, and tabulations. Inasmuch as these articles were prepared by individuals or governmental agencies as basic material for this report, each appears under the name of the contributor.

In addition to material on the region and its resources, the appendixes include a review of the water-rights situation in the region, a synopsis of the Tennessee Valley legislation, and an outline of the functions and operations of the Ontario Hydro-Electric Commission.

A summary of results of informal hearings held by the Regional Planning Commission during the progress of this study is also included.

STAFF REPORT—SECTION II
THE REGION: ITS RESOURCES, PROBLEMS, AND NEEDS; AND ITS FUTURE

Contents

	Page
1. Introduction	30
2. Conditions, resources, and activities	31
Physiography	31
Climatology	32
Water resources	34
General statement	34
Harbors and inland waterways	37
Power	39
Flood control	47
Fisheries	49
Irrigation	51
The Columbia River and its development	54
Land resources	54
Land, soil and cover	54
Agriculture	55
Grazing	57
Forestry	57
Mineral resources	61
Industries	64
Commerce	66
Transportation	66
Recreation	69
Public works	69
3. Population	73
4. The future of the region—general summary, analyses, and recommendations	91

. . . The combination of resources of various kinds, and their further development and utilization under the stimulus of plentiful and low-cost power, presents an opportunity for the creation of wealth—national as well as regional—and for the maintenance of a regional population considerably greater than at present and at a higher standard of living . . . *(page 30)*

STAFF REPORT—SECTION II
1. INTRODUCTION

The purpose of this part of the report is to picture the region and its future. This rather difficult task has been essayed through necessarily abbreviated descriptions of the region's physical and economic features; summarized views of each of the major resources and assets, including population; and, finally, a general analysis of conditions, trends, possibilities, and desirable objectives. The epitomized statements of the various resources and activities are supplemented by more complete basic articles included in the appendixes. Section II is the work of the entire staff.

Concerning as it does the characteristics of the region and its probabilities and possibilities, this part of the report is, of course, basic material for the consideration of the problems of the regionality of the Pacific Northwest, and of organization for planning, construction, and operation of public works, reported upon in sections III and IV. The progress report[1] of 1 year's work of the Regional Planning Commission covered this ground in a preliminary way; it described the region, its resources, and its major problems and needs as a basis for regional planning.

For convenience in the preliminary stages of this investigation, the four States of Washington, Oregon, Idaho, and Montana, now represented in the Regional Planning Commission, are considered. While the larger portion of the Columbia Basin outside of Canada lies within these four States, relatively small segments are to be found in the States of Wyoming, Utah, and Nevada. There are economic and cultural radiations from the Columbia Basin which cover the States of Washington, Oregon, and Idaho almost entirely and a very substantial part of the State of Montana. But within the allotted time, it was not practicable to make the statistical break-downs involved in the separate consideration of the actual physical Columbia Basin or a Columbia Basin or Pacific Northwest region more limited in extent than the four States.

An initial view of the region (four-State basis) might include the following salient facts:

[1] Consultant's report on Regional Planning in the Pacific Northwest, January 1934–January 1935.

The area is about 397,000 square miles—13.1 percent of that of the United States.

The population (1930) is approximately 3,500,000—2.8 percent of that of the United States.

The distance east and west across the region is over a thousand miles; north and south it is nearly 500 miles.

The distance along the Washington-Oregon coast from the British Columbia line on Georgia Strait to the California line, is about 700 miles.

Over two-fifths of the Nation's known potential hydroelectric power is within this area—over two-thirds of this is in the Columbia River system, and over three-fifths lies within 150 miles of tidewater. Of this potential water power capacity less than one-tenth is developed.

In 1925, the post-war peak year of United States lumber production, the forests of the region produced one-third of the Nation's cut.

Over two-fifths of the national forest reserves are located in the region.

The region contributes about one-fifth of the Nation's wheat and one-tenth of its flour. Nearly one-third of the Nation' wheat and flour water-borne shipments, domestic and foreign, are from Columbia River and Puget Sound ports.

The region grows over one-third of the Nation's commercial apple crop; one-fourth of the wool. It furnishes about one-eighth of the salmon pack.

It refines one-sixth of the country's copper, one-fourth of its lead, and one-fourth of its silver. It has substantial deposits of the ores of metals commonly used in the production of ferro-alloys. Mineral deposits of present or potential importance include also coal, phosphates, limerock, clays, and magnesite.

Climatic conditions in large parts of the region, including the areas of the greatest industrial and commercial development, are excellent for sustained physical and mental activity.

As an added resource, of both commercial and cultural value, the region has a great variety of recreational features.

The combination of resources of various kinds, and their further development and utilization under the stimulus of plentiful and low-cost power, presents an opportunity for the creation of wealth—national as well as regional—and for the maintenance of a regional population considerably greater than at present and at a higher standard of living.

Physiography

General

The Pacific Northwest region, west of the Continental Divide, is included between 41° and 49° of north latitude, and 110° and 125° of west longitude; extends about 500 miles north and south and 700 miles east and west; embraces an area of 259,382 square miles, of which 3,782 square miles is water surface; and its Pacific coast frontage is about 460 miles long. Among its varied physical features are lakes, rivers, seashore, glaciers and perennial snowfields, valley lands, broad open plains areas, high plateaus, and numerous mountain ranges, some of which are studded with peaks of commanding altitude. Beside the Rocky Mountains along its eastern border its other major mountains include the Coast and Cascade Ranges in Oregon and Washington; the Coeur d'Alene and Bitter Root ranges forming part of the boundary between Idaho and Montana; the Sawtooth Range in southeastern Idaho; the Olympics in northwestern Washington, a mountain mass about 60 miles in diameter whose highest peak, Mount Olympus, has an altitude of 7,915 feet, and the Blue Mountains, in northeastern Oregon and southeastern Washington, whose highest peak, the Matterhorn, has an altitude of 9,800 feet. Its magnificent river system has for its main artery the Columbia with its 259,000 square miles of watershed, of which 39,000 square miles are in Canadian territory.

The Coast Range, the westerly slopes of which reach practically to the ocean shore, extends north and south across Oregon and Washington. The range has been cut through by the Rogue, Umpqua, Columbia, and Chehalis Rivers on their way to the sea. The Coast Range is relatively low as compared with the Cascades. The Cascade Range also extends north and south across Oregon and Washington, its continuity broken only by the deep-cut gorge of the Columbia. It stands from 100 to 180 miles back from the coast and rises to general elevations of from 5,000 to 8,000 feet but with numerous peaks of over 9,000 feet elevation. The highest of these are Mounts Rainier (14,408) and Adams (12,307) in Washington and Mount Hood (11,225) in Oregon. The Cascade Range is the dominant topographic feature of Oregon and Washington and, both physically and climatically, divides these States into eastern and western sections. (See *Frontispiece.*)

Washington

Along the northern boundary of the State, the Strait of Juan de Fuca extends 100 miles inland from the ocean connecting, at its easterly end, with Puget Sound, a water body of an average width of 20 miles and a length of 130 miles. The Strait and Sound combined provide 3,000 square miles of navigable inland sea with numerous developed and potential harbors along its shores. It is a physical asset of great commercial value to the State, the region, and the Nation.

There are numerous lakes and rivers within the State, the more important lakes being Cedar, Washington, Cushman, Quinault, and Crescent on the west side and Keechelees, Kachess, Cle Elum, Wenatchee, and Chelan on the east side. Among its more important rivers are the Lewis, Cowlitz, Chehalis, Nisqually, Puyallup, Snohomish, Skagit, Hoh, Quinault, and Queets on the west side and the Yakima, Wenatchee, Chelan, Okanogan, Clark Fork, Spokane, and Snake on the east side. The Columbia is the principal river of both eastern and western Washington, all of the east-side rivers above named being within its watershed, and it also drains a large west-side area in both Washington and Oregon.

The major portion of central and eastern Washington is a great open plains country, rising from west to east with elevations ranging from 500 feet to 2,500 feet above sea level. Though western Washington has many broad open valleys and cut-over areas, it is, in general, heavily timbered, but eastern Washington, excepting a relatively few strips in mountainous areas along its borders, is practically free of timber.

Oregon

With its ocean frontage, its coast and Cascade Ranges, and its open-plains country on the east side, Oregon's physiography is quite similar to that of Washington. Central and eastern Oregon is a high plateau ranging in elevation from 4,000 feet to more than 5,000 feet, with a few isolated hills and buttes rising to higher elevations, and with the borders of the plateau, in places, cut by rather deep canyons. The plateau slopes northerly to the Columbia and easterly to Snake River. Western Oregon is heavily timbered and in eastern Oregon the timbered areas, although extensive, are more limited in proportion to total area.

The principal west side rivers are the Willamette, which flows between the Coast and Cascade Ranges about 130 miles northerly to its junction with the Columbia; the McKenzie, Santiam, and Clackamas, which are tributaries of the Willamette; and the Coquille, Rogue, and Umpqua, which empty directly into the Pacific Ocean. The more important east side rivers are the Deschutes, John Day, Umatilla, Malheur, and Owyhee. There are a number of large lakes in southern Oregon, all of them outside the Columbia River watershed and all self-contained, having no surface outlets. Among these are Harney, Malheur, Summer, Albert, Goose, and Crater Lakes. The latter is the central feature of Crater Lake National Park. The Klamath Lakes at the State's southern border discharging into Klamath River, are also important bodies of water.

Idaho

The northern portion of Idaho is mountainous, while its southern portion, including fewer mountains, is a broad, open plains country through which flows the Snake River. This river rises in Yellowstone and Grand Teton National Parks in Wyoming, flows westerly across Idaho, thence northerly through 200 miles of canyon to Lewiston, thence westerly into Washington. The northerly portion of Idaho's panhandle is drained by the Kootenai, Clark Fork, and Spokane Rivers. The remainder of the State is drained by the Snake and its tributaries, chief of which are the Boise, Payette, Weiser, Salmon, and Clearwater Rivers. In addition to its mountainous, well-timbered areas, Idaho also has extensive open areas highly developed agriculturally. Chief of these is the Snake River Plains, already mentioned. Other areas are the Camas and Nez Perce prairies in Latah and Nez Perce Counties, respectively, and some important valleys in the panhandle, wherein also lie the beautiful Priest, Coeur d'Alene, and Pend Oreille Lakes.

Montana, Wyoming, and Other Areas

The remaining areas west of the Continental Divide include 25,062 square miles in Montana, 5,054 square miles in Wyoming, and lesser areas in Utah and Nevada. The Montana and Wyoming sections are of a rugged, mountainous character and are fairly well timbered. The mountain valleys are generally deep and narrow but, in places, widen out into productive areas of good agricultural land. The Montana section is drained by the Kootenai River and by Clark Fork and its main tributaries, Flathead, Blackfoot, and Bitter Root Rivers. Its drainage also includes Flathead Lake with an area of 167 square miles. Along the Continental Divide is Glacier National Park in Montana and the Yellowstone and Grand Teton National Parks in Wyoming. The Utah and Nevada sections include the headwater drainage of the Raft, Salmon Falls, Bruneau, and Owyhee Rivers, all of which empty into the Snake which, in turn, empties into the Columbia. These areas are, in general, of the high plateau type, and are barren of timber except for scattering stands at the higher altitudes.

Drained by the Missouri River and its tributaries, Montana, east of the Continental Divide, is largely a great plain. The main range of the Rockies gradually merges into the prairie country in a series of descending spurs. On its northerly side the Missouri is fed by the Teton, Marias, and Milk Rivers. The latter parallels the main river draining the portion of the State between the Canadian border and the Missouri.

On the southerly side, the Yellowstone is the main tributary, entering the Missouri across the line in North Dakota. The Yellowstone, in turn, is fed by a number of streams, the most important being the Big Horn and Powder.

Between the Yellowstone and the Missouri, the Musselshell drains the area, entering the Missouri midway between the Rockies and the eastern State boundary. From its confluence with the main river to the Yellowstone, there are no rivers of importance.

Excepting in the mountain ranges bordering the westerly and southerly portion of eastern Montana, this portion is devoid of trees.

Climatology

The region presents marked variations in climate due to a wide range in character of topographic relief: to the source and direction of prevailing winds; to its broad lateral expanse between the Pacific Ocean and the Rockies with important intervening mountain ranges and valleys; and, in minor degree, to its range in latitude. The section west of the Cascades is humid; the central and southeasterly sections are semiarid; and the remaining sections, largely mountainous, are between these extremes. Like variations obtain as to temperature conditions.

An equable climate for the areas near the Pacific results from prevailing westerly winds and nearly uniform ocean temperatures of from 50° to 55° F. Prevailing winds are off the Pacific, northwesterly in summer, southwesterly in winter, and when the latter are unusually strong and warm they carry thawing marine temperatures practically to the Continental Divide. Conversely, short-period easterly winds carry moderate continental temperatures into Washington and Oregon and account for the occasional freezing winter weather and hot summer weather experienced on the coast.

The main precipitation source of the region is the Pacific Ocean. Its southwesterly winter winds are heavily moisture laden and, passing over the cooler land surfaces, rapid condensation ensues with resultant heavy precipitation over the area west of the Cascades and with marked reduction after passing their summit. In summer, the northwesterly ocean winds encounter warmer air currents over the land area causing them, generally, to absorb rather than to release moisture, with final precipitation toward and beyond the Continental Divide. These phenomena make for wet winters and dry summers, definitely so for the coastal section and partially so for the midsection, but approaching the easterly rim of the region the tendency is toward a more uniform seasonal distribution of precipitation. In the higher mountain regions much of the precipitation is in the form of snow. Due to the variable factors set forth in the initial paragraph, and particularly to the Coast and Cascade Ranges which directly cross the path of the prevailing moisture-bearing winds, a great variation in annual precipitation obtains, as briefly detailed in the next paragraph. (See isoplethic map, figure 13.)

The range in annual precipitation, from west to east across the region, is about as follows: Along the coast 75 to 80 inches; along the summit of the Coast Range, 120 to 180 inches; in the Olympics, 150 to 180 inches on its southwest exposure to as little as 16 inches at the foot of its northerly slope at Sequim; the Puget Sound Basin, 20 to 50 inches; the Willamette Valley, 35 to 60 inches; the Rogue and Umpqua Valleys, 17 to 35 inches; along the summit of the Cascades, 80 to 120 inches; along the easterly toe of the Cascades, 15 to 20 inches; along the Columbia in south central Washington, 6 to 10 inches; the high plateau section of central Oregon, 10 to 20 inches; along the Washington-Idaho boundary, about 20 inches; along the summit of the Coeur d'Alene Mountains, about 60 inches; along the Clark Fork in Montana, about 20 inches; and approaching the Continental Divide, 40 inches or more. In the Snake River Plains of southern Idaho, and adjacent foothills, the range is from 12 to 15 inches and in the higher mountains to the north, 25 to 40 inches.

West of the Cascades, excepting in the higher altitude mountain areas, temperatures are moderate. The coastal strip has a mean annual temperature of from 48° to 52°, mean midwinter temperatures of from 35° to 40°, and maximum temperatures that range generally from 65° to 75°. Approximately like temperatures obtain for the Puget Sound Basin at sea level. In the valleys of the intermountain area between the Coast and Cascade Ranges the temperature variation is somewhat greater than that for the coast. The west slope of the Cascades has mean annual temperatures of from 40° to 50°. Despite these moderate normals, some freezing weather occurs and many of the west side weather stations report minima of 0° or less and maxima of 100° or more. These extremes occur only at rare intervals. The growing season varies from 150 days along the west slope of the Cascades to as much as 300 days for some sections along the coast.

Contrasting sharply with that on the west side, the climate east of the Cascades, in Oregon and Washington, is characterized by light precipitation, low humidity, rapid evaporation, and a wide range in temperature. The spread between mean temperature of the warmest and coldest months is from 45° to 50°. The mean annual temperature varies from about 40° for the high plateau region of Oregon to about 53° for central Washington along the Columbia. In the central section, in the lower river valleys, maximum temperatures range from 110° to 115° and minimum temperatures from 30° to 15°. The like ranges for the higher sections are 105° to 113° and −16° to −30°, respectively.

Irrigation is a necessity and is practiced over extensive sections of eastern Oregon and Washington. The growing season varies from about 50 days in the high plateau region of Oregon to 200 days or more for the major irrigated areas in the central section.

Northern Idaho and western Montana, to some extent, feel the moderating influence of the prevailing winds from the ocean and their climate therefore is milder than that of sections east of the Continental Divide. In general, their mean annual temperatures range from 40° to 50°, their maximum temperatures from 75° to 100°, and minimum temperatures of −30° or lower are not unusual. In southeastern Idaho and western Wyoming relatively low mean annual temperatures prevail. The higher mountain sections have long and severe winters, heavy snowfall, and temperatures that occasionally go below −40 degrees. Winters are progressively less severe toward the lower sections of the Snake River Plains and at the westerly end, in the valleys of the Boise, Payette, and Weiser Rivers, they are comparatively mild, winter temperatures ranging generally from 28° to 35° and summer temperatures from 80° to 105°. Irrigation is extensively and successfully practiced in Idaho and western Montana. The growing season where agriculture is practiced, ranges generally between 140 and 200 days except in the higher mountain valleys where it is as little as 115 days. (See isoplethic map, figure 13.)

East of the Rocky Mountain area the climate of Montana is distinctly continental, with extreme winter and summer temperatures.

Evaporation is an important economic factor in connection with water-supply problems, particularly in semiarid sections where water must be conserved. Unfortunately only meager evaporation data are available for this region. From such data as are available the following approximations are deduced. In Oregon and Washington, annual evaporation ranges between 20 and 55 inches, the lower figure applying to the section west of the Cascades and the higher figure to the lower irrigated sections along the Columbia east of the Cascades. In Idaho the range is from 37 to 51 inches, depending largely upon altitude and exposure. No actual data are available for western Montana and western Wyoming, but it is believed that their mean annual evaporation will approximate Idaho's lower limit as stated above.

Water Resources

General Statement

Conservation and utilization.—The conservation and proper utilization of its water resources constitute the major economic problem of the Pacific Northwest, because its industrial, agricultural, and population, domestic and industrial water supply, fisheries, ments dependent primarily upon water supplies. This condition imposes the necessity for an intensive study of the region's water resources, and among the major needs of such a study are material increases in the work of stream gaging, river and reservoir surveys, topographic mapping, and meteorological observations.

Involved in the whole problem are the various uses to which water may be put: Irrigation, power, navigation, domestic and industrial water supply, fisheries, etc. The control of flood waters has also to be considered. A flowing stream in its natural uncontrolled state is a coordinator in itself, to the extent that as it passes down to the ocean such demands as man may have on it have to be satisfied as it passes. With human control the order may be materially changed and greater use made of this asset when it will return the greatest benefit. For instance, by storing flood waters more irrigation may be accomplished, more power developed, more water depth provided for navigation, and flood conditions downstream rectified or minimized. Evidently then, human coordination is essential to obtain the maximum returns from this resource.

Water-right problems.—In all of the Pacific Northwest States the doctrine of appropriation, as superior to that of riparian rights, obtains in absolute or qualified form. The cardinal principles of the doctrine of appropriation are that first in time are first in right and that beneficial use is the measure and limit of the right. When acute water shortages develop, or uneconomic use of water is believed to obtain, questions of water rights and water usages on interstate streams are found to arise. These interstate questions will relate to priorities of appropriation, ultimate irrigation and power needs, interpretation of beneficial use, storage, and flood-control problems, etc. International water problems will similarly arise for there are numerous streams crossing the international boundary and some of these—the Columbia, Clark Fork, Flathead, and Kootenai Rivers—are important in respect to both present and future developments. These problems, sooner or later, will call for interstate and international agreements.

Surface waters.—The Columbia River is the great arterial of the region's drainage system. It embraces a watershed of 259,000 square miles, of which 39,000 square miles are in Canada. The coastal streams, west of the Cascades, embrace an additional 39,772 square miles, of which 390 square miles are in Canada. The Columbia rises in British Columbia; traverses a river length of 461 miles to the international boundary; thence, 425 miles to the mouth of the Snake River; thence, 324 miles to the ocean; thus embracing a total length of 1,210 miles. The lower 110 miles of the river is a tidal section long since developed for deep-sea shipping. Potential developments within Canada's portion of the watershed include irrigation, power, and possible storage in Kootenai and the Arrow Lakes. These, of necessity, have a bearing upon developments below the international boundary.

Over-all drainage areas, somewhat segregated, are shown in table I, only the more important rivers being listed by name.

TABLE I.—*Drainage areas*

Name of basin and river	Length	Drainage area
COLUMBIA BASIN	*Miles*	*Square miles*
Kootenai	448	19,450
Clark Fork	479	25,820
Snake	1,040	109,000
Deschutes	253	10,500
Willamette	274	11,150
All other tributaries and Columbia River proper		83,080
Total		[1] 259,000
PACIFIC COAST BASINS (OTHER THAN THE COLUMBIA)		
Skagit	160	3,050
Skykomish	60	840
Snoqualmie	65	690
Puyallup, including the White	80	951
Nehalem	111	850
Coquille	92	1,000
Umpqua	200	4,500
Rogue	201	5,020
All other drainage		22,871
Total		[1] 39,772
Grand total		[1] 298,772

[1] Of these areas, the Canadian drainage is 39,000, 390, and 39,390 square miles, respectively.

Run-off conditions.—The major run-off factor is precipitation and, therefore, the unit run-off for west-side streams is much larger than for east-side streams. Some of the streams in the semiarid sections have a mean annual run-off of less than 200 acre-feet per square mile, whereas, for some of the Pacific slope streams, the run-off exceeds 8,000 acre-feet per square mile. There is also a nonuniform seasonal distribution, the low-water flow occurring generally in the late summer and early fall. On many streams, this condition compels storage of high-water flow for use during the period of low water. A few typical examples of high- and low-unit run-off, of streams both east and west of the Cascades, are presented in table II.

TABLE II.—*Run-off data for a few typical streams*

Streams and gaging stations (streams west of the Cascades marked (w))	Length of record	Drainage area	Mean annual run-off (acre-feet)	
			Total	Per square mile
	Years	*Square miles*		
Wynoochee River at Oxhow, Wash (w)	8	65	531,000	8,160
Puyallup River at Puyallup, Wash. (w)	19	914	2,320,000	2,540
Yakima River at Cle Elum, Wash	27	500	1,410,000	2,820
Yakima River near Parker, Wash	20	3,560	2,240,000	629
Snake River at Riparia, Wash	24	102,000	36,200,000	355
Columbia River at The Dalles, Oreg	55	237,000	146,000,000	615
Malheur River near Drewsey, Oreg	7	1,010	94,800	94
Umatilla River near Pendleton, Oreg	10	640	334,000	521
Umpqua River near Elkton, Oreg. (w)	28	3,680	5,130,000	1,395
Siletz River at Siletz, Oreg. (w)	13	204	1,270,000	6,220
Snake River near Heise, Idaho	13	5,740	5,135,000	895
Fall River at Squirrel, Idaho	15	380	580,000	1,530
Big Wood River at Hailey, Idaho	18	640	217,000	339
Clark Fork near Plains, Mont	15	19,900	13,500,000	679
Flathead River near Polson, Mont	23	7,010	8,080,000	1,151

Total annual yield.—The mean annual run-off of the Columbia River Basin is estimated at 155,000,000 acre-feet, and of the Pacific slope basin, exclusive of the Columbia, 145,000,000 acre-feet. Of the combined total, it is estimated that the Canadian portion of the watershed contributes 25,000,000 acre-feet. It is also estimated that the annual run-off is about two-thirds of the annual precipitation over the region, the remaining one-third going to evaporation, transpiration, and ground water. It is an interesting fact that, although the Pacific slope basin represents but 14 percent of the region's drainage area, it yields practically 50 percent of the run-off.

Water requirements.—Ultimate requirements, in detail, of the manifold water uses of the region are not now accurately determinable, but estimates of aggregate consumptive use requirements, both present and future, are possible. Present irrigation diversions approximate 20,000,000 acre-feet annually and diversions for all other purposes increase that figure by about 2 percent. When the region's 10,000,000 acres of irrigable land are fully reclaimed the required diversions for all purposes will approximate 50,000,000 acre-feet annually. Although the mean annual run-off is many times the latter figure, it does not necessarily mean an overabundant water supply. The unequal seasonal and geographic distribution of run-off results in much wastage of water, causes excesses in some sections and deficiencies in others, and necessitates extensive storage.

Storage.—Present artificial storage in the region amounts to about 9,000,000 acre-feet. Ultimate reservoir possibilities will approximate 50,000,000 acre-feet. The region also has very extensive natural storage in its numerous glaciers and high-altitude snow fields, an economic fact of importance, because they greatly reduce the amount of artificial storage that would otherwise have to be provided for maximum utilization of the available water supply. No systematic estimates of the extent and economic value of these important resources have yet been made.

Ground waters.—Because of their lesser volume, their lesser accessibility, and the greater difficulty of defining them, ground waters are less important than surface waters. As the easily available surface supplies becomes exhausted and distant sources must be sought, or where heavy expense must be incurred for storage, ground water will come into greater demand and increase in relative importance. It is already of importance in some localities. All of Spokane's domestic supply comes from ground water sources, about one-third of Tacoma's supply is similarly obtained, and potable ground water seems to be abundant throughout the Puget Sound Basin. Other promising ground water localities are the Willamette Valley, along the Columbia River in central Washington, and southwestern Idaho. About one-third of the region's total precipitation is absorbed, in part by evaporation and transpiration, in part by deep percolation, and in part by replenishment of ground water supplies. No sufficient data are now available to determine the relative amounts of these several absorptions, but of their annual aggregate of about 140,000,000 acre-feet, a substantial portion may safely be assumed to be ground water.

Past ground-water investigations have been mainly of a reconnaissance nature, made long before the present extensive irrigation developments, and do not represent present conditions. The more recent investigations have been more detailed and of greater value. The investigation of some 16,000 square miles along the Snake River Valley, in southern Idaho, made by the United States Geological Survey, 1928 to 1932, was a particularly creditable work. It was found that where

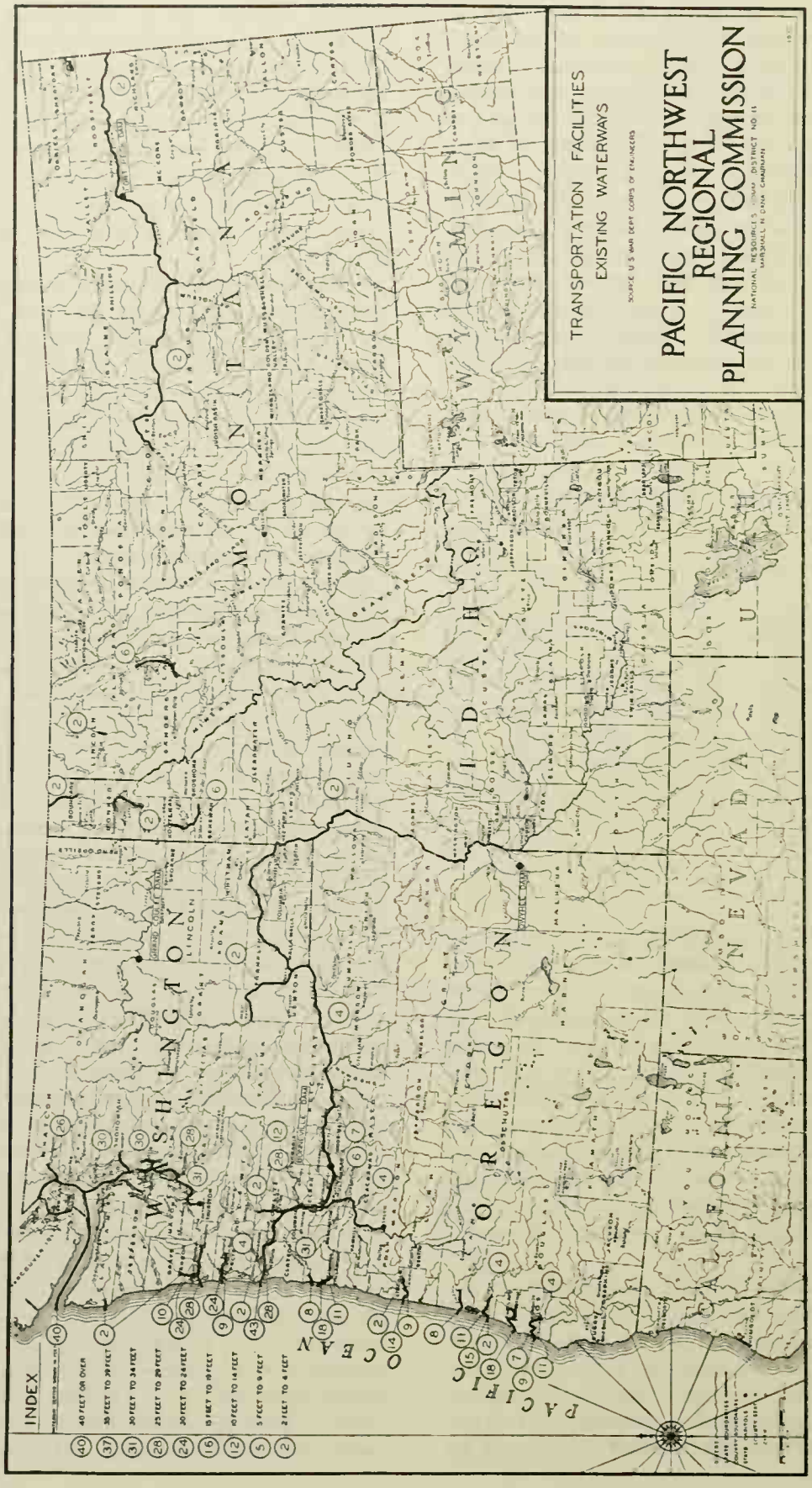

PACIFIC NORTHWEST
REGIONAL
PLANNING COMMISSION
TRANSPORTATION FACILITIES
EXISTING WATERWAYS
INDEX
40 FEET OR OVER
35 FEET TO 39 FEET
30 FEET TO 34 FEET
25 FEET TO 29 FEET
20 FEET TO 24 FEET
15 FEET TO 19 FEET
10 FEET TO 14 FEET
5 FEET TO 9 FEET
2 FEET TO 4 FEET
WASHINGTON
OREGON
IDAHO
MONTANA
WYOMING
NEVADA
UTAH
CALIFORNIA
PACIFIC OCEAN

FIGURE 1.

Snake River had cut but little below the general valley level, ground water was found at shallow depths, but where it had cut deeply below the upland surface, the adjacent formations were drained, and ground water was obtainable only at depths of several hundred feet. That some of the lava formations of that section are highly permeable is evidenced in the numerous springs that appear along the north wall of Snake River Canyon.

Of the total present water consumption in the region, less than 2 percent is from ground water, but for domestic and industrial services alone, a very considerable portion is derived from that source. With increased shortages of surface water supplies, and clearer definition of ground-water provinces, the above figure will no doubt be increased. The ground-water provinces of the region, as now designated by the United States Geological Survey, are the Pacific Mountain Province, which mainly comprises the coastal region west of the Cascades; the Northern Rocky Mountain Province, which comprises northeastern Washington, northern Idaho, and Montana and Wyoming along the Continental Divide; and the Columbia Plateau Lava Province, which comprises central and southeastern Washington, the high plateau section of eastern Oregon, and the Snake River Plains in southern Idaho.

Future water supply studies.—A very definite present need of the region is a material increase in the number of stream gaging stations, of meteorological stations, and of river and reservoir surveys. In respect to ground waters, there are needed more detailed studies of evaporation and transpiration; a more detailed delineation of ground-water provinces and the location of specific aquefers within those provinces; the determination of seasonal and annual variations of ground-water levels; qualitative analyses of ground waters; etc. The United States Geological Survey has already outlined a broad-gaged national program of ground-water investigations. This program only awaits adequate financing to become operative, and effort should be made to secure, for this work, either emergency funds or regular departmental appropriations by the Congress.

Deep Sea Harbor and Inland Waterway Development in the Pacific Northwest

Many of the natural harbors of the Pacific Northwest have been improved for the use of modern ocean-going vessels and important ports for the movement of general commerce and lumber have been developed in the Puget Sound area, along the lower Columbia and Willamette Rivers, and at a number of the coastal harbors. The total expenditures on these improvements to date have amounted to about $75,000,000 for channel work and $50,000,000 for terminal facilities. The commerce moving over these waterways during a normal year amounts to over 25,000,000 tons of ocean-going traffic and 17,000,000 tons of local traffic. The commerce moving through these deep-sea ports has increased with the development of the region and will continue to increase with growth in population and further industrial and agricultural expansion.

Future improvement of these deep-draft harbors and waterways should, in general, follow along the lines already established, and channel dimensions should be devised as warranted by increase in commerce or change in the character of the vessels using the waterways. Upon completion of the Bonneville navigation-power project on the Columbia River, serious consideration should be given to the extension of a deep-water channel 100 miles farther inland with a view to making available deep-water facilities to upriver industrial sites as well as to the inland agricultural area.

The Columbia River and its main tributaries, the Willamette and Snake Rivers, have been partially improved in the interest of river navigation. The only other shallow-draft navigation improvement in the region has consisted of improvement of numerous tidal sloughs and the tidal section of a number of streams, primarily as an aid to the movement of rafted logs. The total expenditures on these channel improvements to date have amounted to approximately $16,000,000. During a normal year the commerce moving over these waterways amounts to approximately 7,500,000 tons, of which 70 percent is limited to short hauls over the tidal section of the streams. Although commercial navigation between tidewater and upriver points has been negligible since the coming of the railroads into the region, interest has revived in water transportation during the past few years and commercial boat lines are again beginning to operate to upriver points. Upon the completion of improvements now under way, many of the still existent hazards to boat operation will be removed and a considerable growth in traffic over these inland waterways may be expected.

Comprehensive and coordinated plans for the development of the water resources of the Columbia and Snake Rivers have been completed, and such ultimate improvement includes, on the Columbia, 10 navigation-power dams between the tidewater and the international boundary, and 10 navigation dams on the lower 140-mile reach of the Snake. The future development of these streams in the interest of navigation should follow these developed plans and should be undertaken as soon as justified by the benefits to all interests affected. Studies are now being carried on with a view

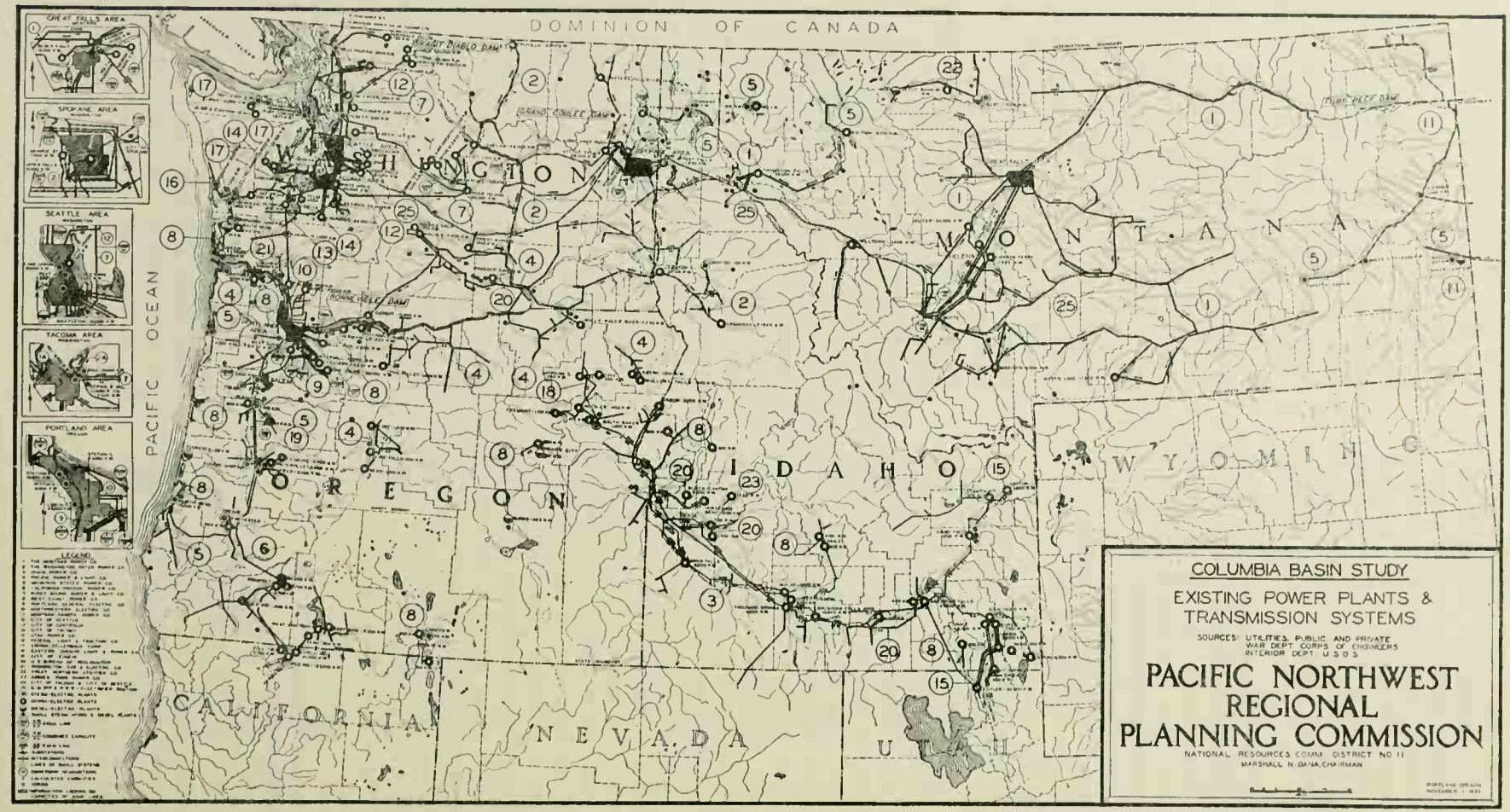

DOMINION OF CANADA
PACIFIC OCEAN
W A S H I N G T O N
O R E G O N
I D A H O
M O N T A N A
W Y O M I N G
C A L I F O R N I A
N E V A D A
U T A H
GRAND COULEE DAM
ROCK ISLAND DAM
COLUMBIA BASIN STUDY
EXISTING POWER PLANTS & TRANSMISSION SYSTEMS
SOURCES: UTILITIES, PUBLIC AND PRIVATE
WAR DEPT. CORPS OF ENGINEERS
INTERIOR DEPT. U.S.G.S.
PACIFIC NORTHWEST REGIONAL PLANNING COMMISSION
NATIONAL RESOURCES COMM. DISTRICT NO. 11
MARSHALL N. DANA, CHAIRMAN

FIGURE 2.

to determining a coordinated plan for the development of the water resources of the Willamette Valley. The ultimate plan of navigation improvement of the Willamette River should await the completion of these studies. The existing channel dimensions on the tidal sloughs and tidal streams should be maintained and the improvements extended as warranted by the needs of commerce.

Eventually the region will have intersecting east and west and north and south inland-water trunk lines. These lines, traversing the parts of the region more highly developed or susceptible of more intensive development, will be constructed or improved in sections as these become economically justified. The east and west trunk will consist of tidewater and canalized Columbia and canalized lower Snake; the north and south trunk of the Puget Sound waterways, the proposed Puget Sound-Columbia waterway, the lower Columbia and the lower Willamette. (See fig. 1.)

Further discussion of waterways is included under the heading of "Transportation", in section II.

Power

Natural resources.—The natural resources of potential energy in this region are to be found in a vast amount of water power and some deposits of coal, oil, and gas. The potential and developed water-power resources are spread throughout the area and total 15,520,000 kilowatts of firm power available 90 percent of the time.

These water-power resources represent 41 percent of the total potential water power of the United States and are divided among the five principal drainage areas as follows:

	Kilowatts
Columbia River and tributaries	11,527,000
Pacific coast drainage area in Oregon exclusive of the Columbia River	832,000
Pacific coast drainage area in Washington, exclusive of the Columbia River	331,000
Puget Sound drainage area	1,126,000
Missouri River in Montana	1,704,000

Present installations.—Generating stations now serving the public have a total installed capacity of 1,792,000 kilowatts, located in 194 stations. Of this amount 1,405,000 kilowatts are located in 145 water-power plants, 369,000 kilowatts in 39 steam-power plants, and 5,000 kilowatts in 12 plants driven by internal-combustion engines. Of this present installed generating capacity of 1,792,000 kilowatts, it is estimated that only approximately 900,000 kilowatts are available 100 percent of the time, or in plants suitable for the continuous economical production of electrical energy.

The interconnecting transmission-line facilities which connect the various main-power centers are of comparatively low capacity. They are sufficient to transfer a small amount of power from one region to another, but they are completely inadequate in capacity to serve as the basic means for transmitting the power from the public-works projects now under construction.

Projects under construction.—The Diablo project being constructed and owned by the city of Seattle will have a capacity of 120,000 kilowatts and will be completed within 1 year.

The Bonneville project for navigation and power, under construction by the Corps of Engineers, United States Army, will have an initial capacity of 86,000 kilowatts and an ultimate capacity of 430,000 kilowatts. The initial installation will be completed within 2 years.

The Grand Coulee project for reclamation and power, under construction by the United States Reclamation Bureau, with an undecided initial generating capacity and an ultimate capacity of 1,890,000 kilowatts, may have the initial installation completed within 4 or 5 years.

Methods of operation.—The policy adopted for the disposition of this new energy will exert a powerful influence on the industrial, economic, and social development of the region; therefore, careful consideration should be given to the problem of formulating initial and permanent policies of organization and methods of operation.

There are five general methods by which these new public-work projects may dispose of the electrical energy:

1. Each project may be operated by a separate agency and the energy sold only at wholesale at the station bus bars.
2. Each project may be assigned to serve a certain specified territory and operated by an agency authorized to construct the necessary transmission facilities and develop new power markets.
3. A transmission authority may be created and authorized to construct and operate a superpower transmission network, leaving the operation of the new and existing power projects under the present control.
4. A power and transmission authority may be set up which will be authorized to take over the operation of these power projects upon their completion and to construct the necessary transmission and distribution facilities and to establish rates, etc., in connection therewith, leaving the control and operation of the reclamation, navigation, and flood-control features under existing agencies.
5. A Columbia Valley authority may be created, authorized with broad powers for the planning, construction, and operation of all the public-works projects and all of the features in connection therewith.

If each project is operated by a separate agency and energy is sold only at wholesale rates at the station bus bars, adequate facilities for placing these large sources of low-cost power at the disposition of the ultimate consumer will not be available. Rather, there would grow up over the region a multiplicity of low-capacity transmission lines unconnected and unrelated, each serving an individual customer or community. Ultimately, many such lines would be scrapped or rebuilt into a major system.

If each project is assigned a certain territory and separate agencies authorized to construct the necessary transmission facilities therein, only certain small areas would be benefited by the larger public-works projects now under construction.

The creation of a transmission authority authorized to construct and operate a superpower transmission network would serve to coordinate the existing and new generating and transmission facilities into one unit and make available large blocks of power in the present and future market areas at the lowest possible expenditure of effort and capital. For the time being at least the operation of the power plants themselves might be left in the hands of existing agencies, but it would become necessary at a very early date to create a coordinating agency in order that full and economic utilization of the water resources may be accomplished.

The creation of a power and transmission authority would unify the electrical operations but would require an agency or agencies with coordinating jurisdiction over water, reclamation, navigation, and power operations.

A single agency for the power operations has many commending advantages and, in all probability, will be the final method of operation of these projects.

Whatever form of agency may be set up it is essential to the ultimate success of these projects that each be considered as a part of a major superpower generating and transmission system, and that all necessary technical requirements of such a system shall be included as a part of the initial construction.

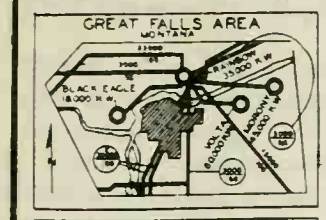
Certain of the existing generating, transmitting, and distributing facilities are important technical and economic factors in this greater power-system network. The rational use of such facilities will affect both the wholesale and retail rates of the electrical energy and will generally reflect in more uniform and lower rates to the ultimate customer. The completion of a comprehensive study of the coordination of the new and existing facilities is suggested prior to the establishing of a final energy rate for the Public Works projects. Such a study may reveal the desirability of an inducive rate structure as an incentive for the distribution agencies progessively to lower the energy costs to rural, domestic, and other classes of customers.

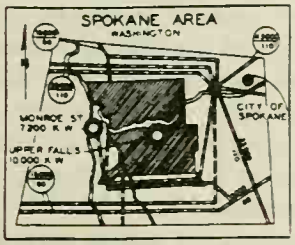
The basic principle underlying such a system and its operation should be that the planning, construction, and operation of the coordinated system shall result in the maximum benefits to the people of the region and Nation as a whole, and that the electric energy shall be made available to the greatest number of people at the lowest possible rates consistent with sound financial considerations.

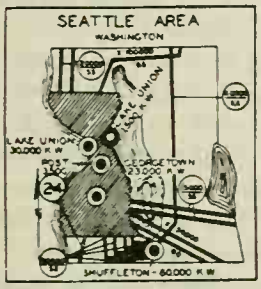
National and international precedents have indicated that the most effective means for a nation or region to modernize its industries and to keep pace with existing competition is to plan a coordinated scheme of generation, transmission, and distribution of electrical energy. Whether such a plan is made effective through public, private, or coordinated interests, it is so impregnated with industrial, social, economic, and governmental possibilities that its inception and administration should be free from local influences and provincialism, yet inspired with the pioneering, progressive, cooperative, and dynamic spirit of the region.

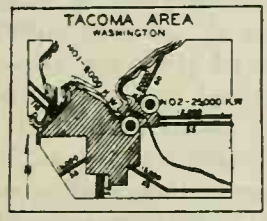
If power from the new Public Works projects is to be marketed within a reasonable time, it is highly important that these new generating plants be brought into close harmony with all the facilities now being used to supply the power demand. To do this, however, at once raises the serious possibilities of a head-on collision not only with the interests of private companies but with the interests of several important municipally owned utilities. No matter what the logic of political economy may be as to the merits or demerits of public as against private ownership, it is certain that we shall have both systems for a considerable time to come. Therefore, it is the part of wisdom to devise some kind of working arrangement which will mitigate useless strife and make possible the fullest economic development of all the power resources at our disposal. To this end the suggestion is made in section IV that the superpower network together with the lower voltage and sundry supply lines be considered a great common-carrier system of energy.

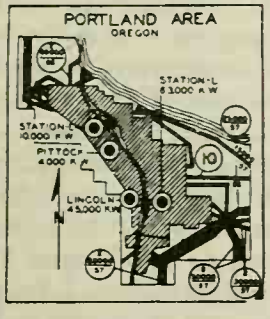
Proposed superpower network.—In a region possessing an abundant supply of potential water power, the urgent need for carefully planning the ultimate development of its energy supply system is obvious. The superpower system for such a region must be capable of transmitting large blocks of power from the water-power sources to the ultimate load centers. The general plan for such a superpower system should be based on the general principle that the resources of the region









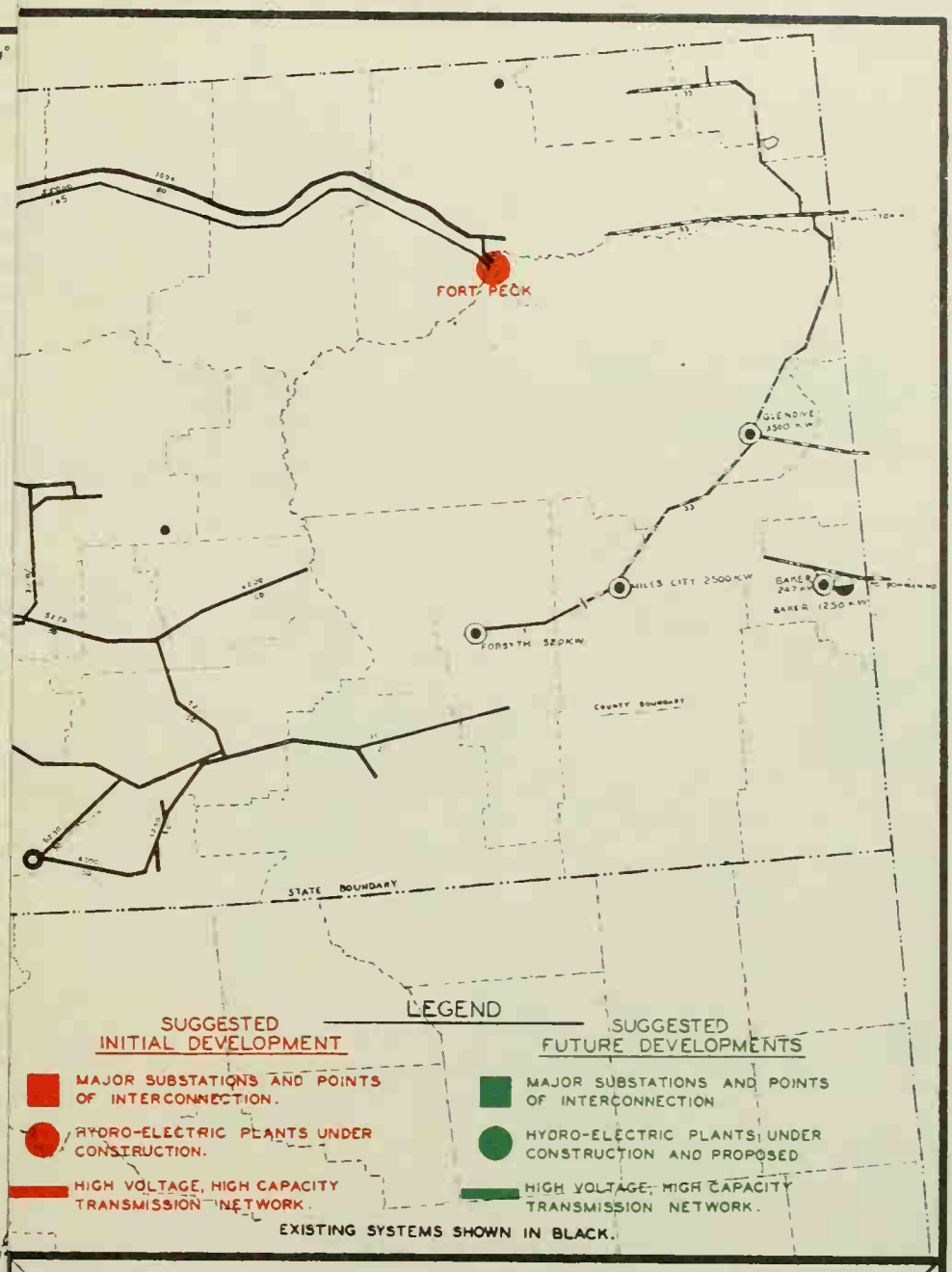


NOTE

INTERCONNECTION FROM SUPER-POWER NETWORK TO EXISTING GENERATING, TRANSMISSION AND DISTRIBUTION SYSTEMS ASSUMED AT SUGGESTED SUBSTATION LOCATIONS BUT NOT INDICATED IN DETAIL.

- STEAM-ELECTRIC
- HYDRO-ELECTRIC
- DIESEL-ELECTRIC
- SMALL STEAM HYDRO & DIESEL
- K.W. / K.V. EACH LINE
- K.W. / K.V. COMBINED CAPACITY
- K.W. / K.V. EACH LINE
- SUBSTATIONS
- INTERCONNECTIONS
- LINES OF SMALL SYSTEMS
- * CALCULATED CAPACITIES
- O TOWNS

NOTE - INFORMATION LACKING ON CAPACITIES OF SOME LINES



COLUMBIA BASIN STUDY

PROPOSED SUPER-POWER SYSTEM SHOWING EXISTING, INITIAL & FUTURE DEVELOPMENTS

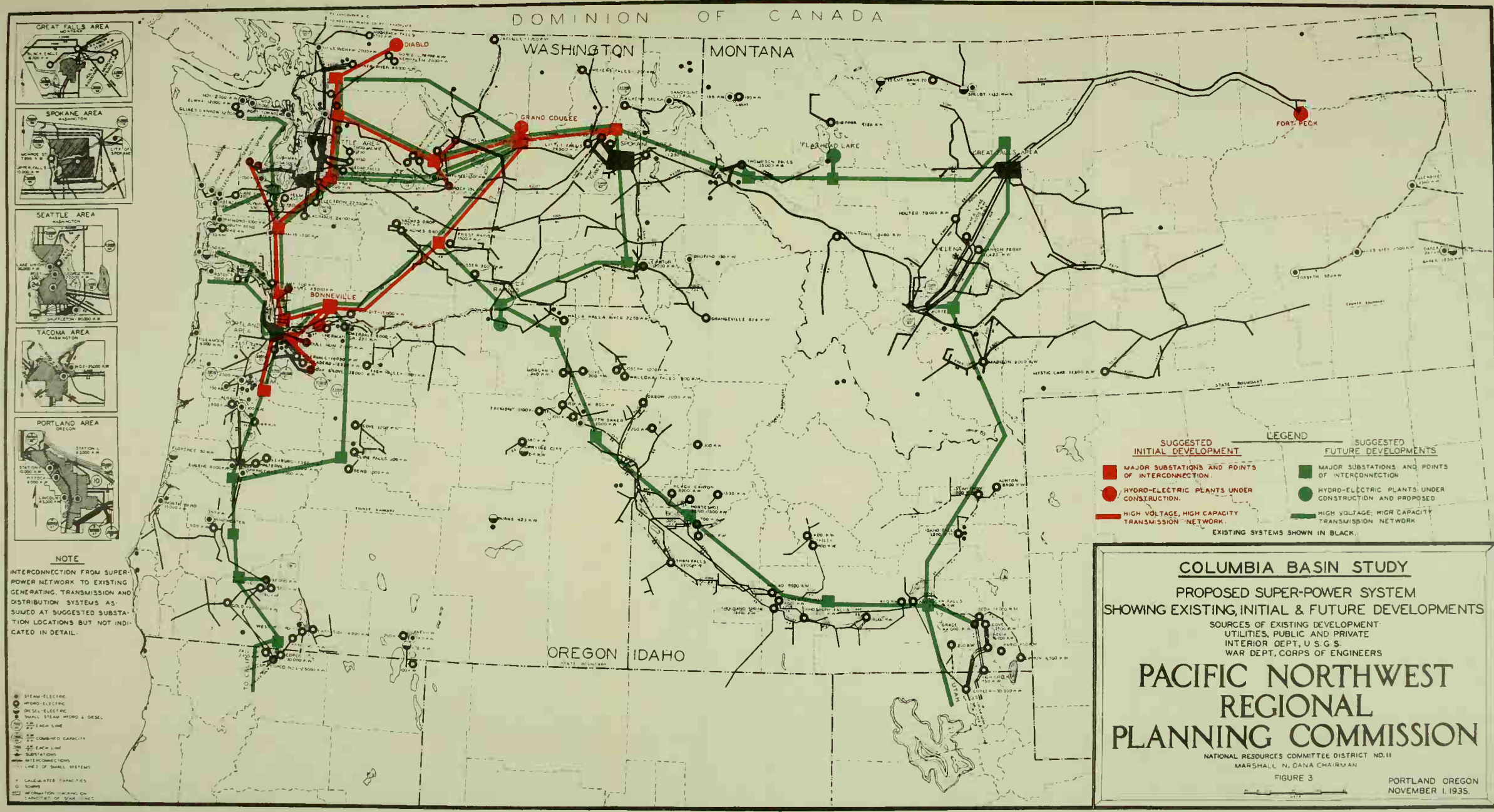
SOURCES OF EXISTING DEVELOPMENT:
UTILITIES, PUBLIC AND PRIVATE
INTERIOR DEPT., U. S. G. S.
WAR DEPT., CORPS OF ENGINEERS

PACIFIC NORTHWEST REGIONAL PLANNING COMMISSION

NATIONAL RESOURCES COMMITTEE DISTRICT NO. 11
MARSHALL N. DANA, CHAIRMAN

FIGURE 3

PORTLAND OREGON
NOVEMBER 1, 1935.


DOMINION OF CANADA
WASHINGTON
MONTANA
OREGON
IDAHO
DIABLO
GRAND COULEE
BONNEVILLE
FORT PECK
FLATHEAD LAKE
GREAT FALLS AREA
SPOKANE AREA
SEATTLE AREA
TACOMA AREA
PORTLAND AREA
LEGEND
SUGGESTED INITIAL DEVELOPMENT
MAJOR SUBSTATIONS AND POINTS OF INTERCONNECTION.
HYDRO-ELECTRIC PLANTS UNDER CONSTRUCTION.
HIGH VOLTAGE, HIGH CAPACITY TRANSMISSION NETWORK.
SUGGESTED FUTURE DEVELOPMENTS
MAJOR SUBSTATIONS AND POINTS OF INTERCONNECTION
HYDRO-ELECTRIC PLANTS UNDER CONSTRUCTION AND PROPOSED
HIGH VOLTAGE, HIGH CAPACITY TRANSMISSION NETWORK
EXISTING SYSTEMS SHOWN IN BLACK.
NOTE
INTERCONNECTION FROM SUPER-POWER NETWORK TO EXISTING GENERATING, TRANSMISSION AND DISTRIBUTION SYSTEMS ASSUMED AT SUGGESTED SUBSTATION LOCATIONS BUT NOT INDICATED IN DETAIL.
COLUMBIA BASIN STUDY
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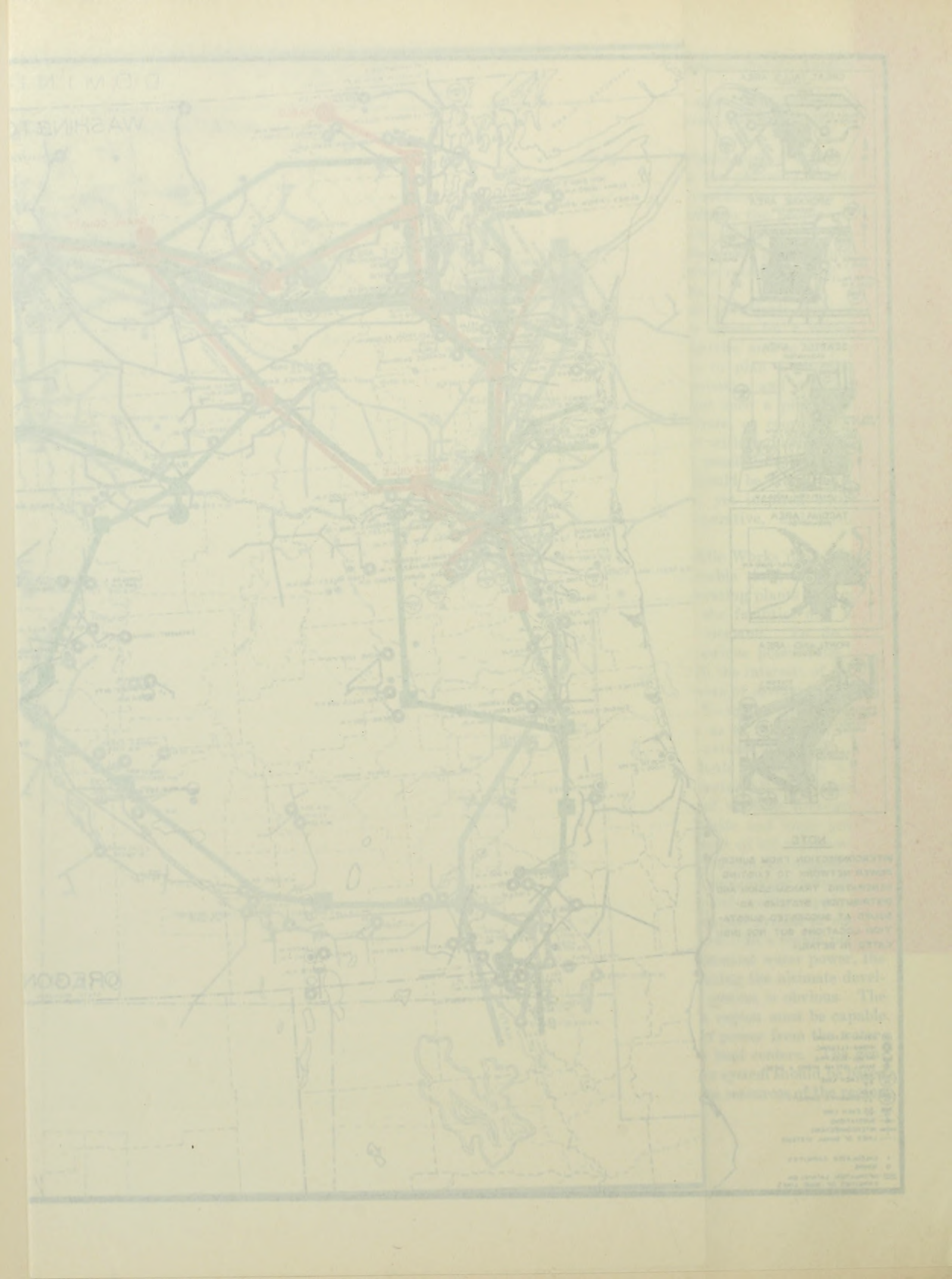
WAR DEPT. CORPS OF ENGINEERS
PACIFIC NORTHWEST REGIONAL PLANNING COMMISSION
NATIONAL RESOURCES COMMITTEE DISTRICT NO. 11
MARSHALL N. DANA CHAIRMAN
FIGURE 3
PORTLAND OREGON
NOVEMBER 1. 1935.



should be used in a coordinated manner which will give the maximum benefit and the lowest possible rates for electric energy.

Upon the completion of the Public Works projects now under construction, a market must be found for the electrical energy from these projects. Markets cannot be brought to the site of these projects, but the electrical energy may be taken into the present and future market by a system of high voltage distribution, commonly referred to as the superpower network.

The fundamental requirements of such a system are:

Reliability: If electrical energy is to find a ready market among the domestic and industrial consumers, its source of supply must be constant and supplied through a system of generation, transmission, and distribution which is free from interruptions.

Availability: This energy supply must be made available over a large area at convenient locations accessible for interconnections with existing systems and industrial plants and local distribution systems.

Capacity: The capacity of the system must be adequate for the present needs with proper allowance for future growth. It must be designed so that its capacity can easily be increased without any change in its original and fundamental pattern.

Constant voltage: The specific technical requirement of the system is that the voltage on all points of interconnection shall be maintained at a constant pressure. This is accomplished in a number of ways, the simplest of which is to use synchronous apparatus either in the form of synchronous condensers or synchronous generators with proper automatic voltage control.

Frequency: Constant frequency is an essential requirement of the electrical energy for a number of industrial processes. Frequency is maintained by the action of the governors of the various power stations. If large blocks of power are taken from the system, careful consideration must be given to the capacity of that system, to the mechanical and electrical inertias of the system, to the type of governors of the prime movers, and to the manner of handling the various loads in order to maintain constant frequency.

Safety: The entire system must be so designed, that without interruption of the service, any segment may be removed for inspection and repairs under conditions which insure the safety of workmen and apparatus.

Emergency: An electrical system which extends over a wide area is subject to disturbance of lightning and storms which may cause a temporary interruption of some section or of some transmission line. The main load centers should, therefore, be linked with some form of emergency or standby generating equipment to be used in time of emergency. In the general pattern of the superpower network of the region under discussion, the existing generating facilities might be used for this service.

Simplicity of design: The general pattern of the superpower system should be along simple, sound fundamental lines.

Fault clearing: Automatic protective schemes must be incorporated in the system so that in case of failure of any one of its elements that element may be removed without serious disturbance to the system as a whole. This requires circuit breakers of adequate arc-rupturing capacity and a relay scheme of high selectivity and high speed.

General plan: Since the superpower network is to serve as a means of transferring large blocks of power from the source of energy to the ultimate consumer, this system should be designed in such a manner that additional generating facilities may easily be added and that large blocks of power may be taken therefrom without interfering with or changing its fundamental plan.

The design of the superpower network requires careful analysis of all of the electrical and mechanical elements of the system, including water wheels, generators, transformers, transmission lines, and all other apparatus in the receiving and generating portions of the system. The Federal power plants should be designed not only for the special local requirements in each case, but for ultimate unification with a superpower system.

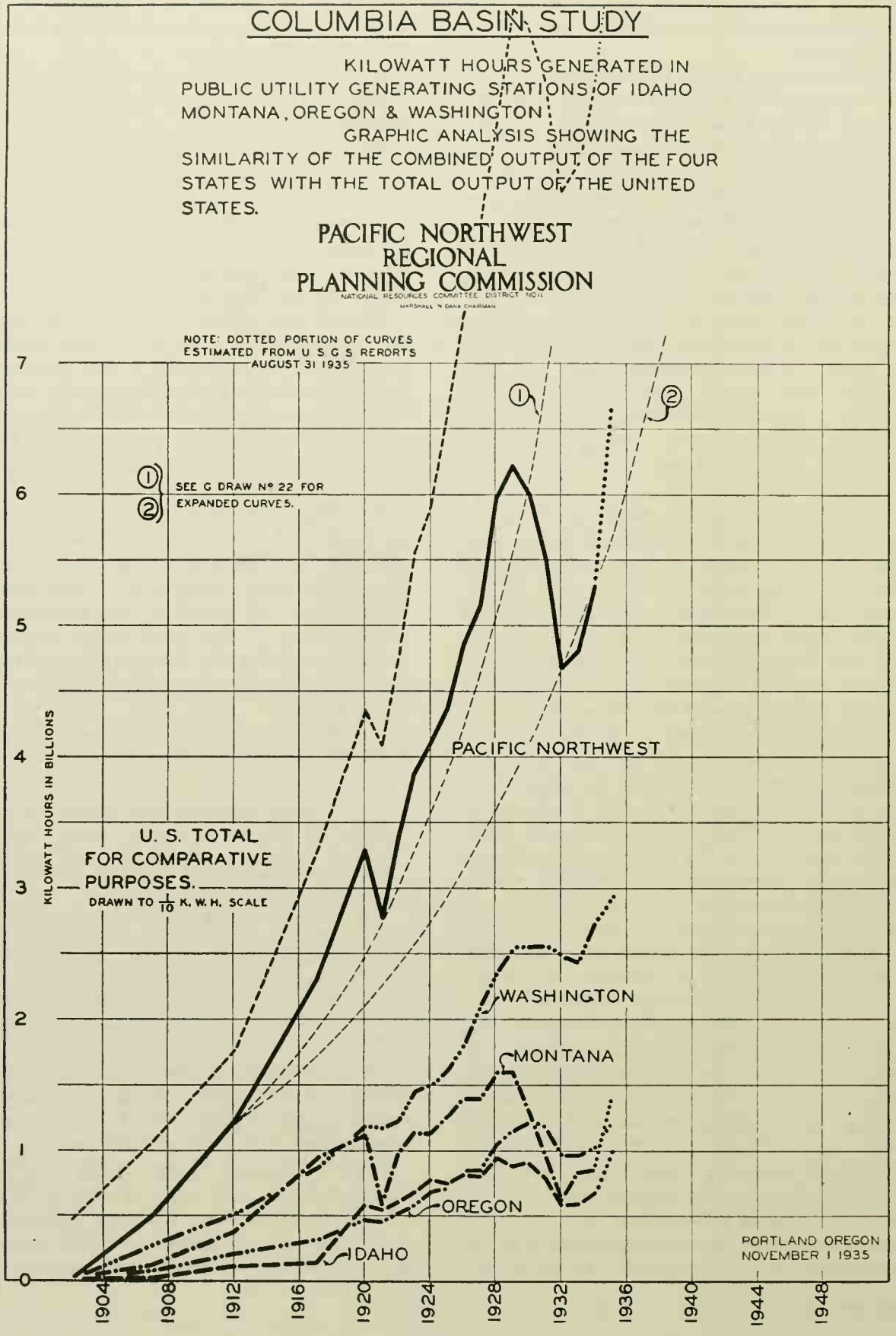
Results: The principal broad results to be expected from the ultimate operation of such a regional superpower system are:

1. A more adequate and flexible supply of firm power for present and early future needs.
2. A greater use of existing facilities for generation, transmission, and distribution of electrical energy, and of invested capital.
3. Reduction in new capital expenditures.
4. Greater opportunity for diversification and decentralization of industry through the wide distribution of power.
5. More effective utilization of the water resources for navigation, reclamation, recreation, and power purposes.

These beneficial results should be reflected in the electrical rate structure. The greater and more mobile reserve supply of power afforded is, of course, an important asset in the national defense.

Types of systems.—Large blocks of power may be distributed over wide areas by several different types of electrical networks. The four principal ones are:

Assigned area: A system in which certain generating facilities are connected into a local system of


COLUMBIA BASIN STUDY
KILOWATT HOURS GENERATED IN PUBLIC UTILITY GENERATING STATIONS OF IDAHO MONTANA, OREGON & WASHINGTON
GRAPHIC ANALYSIS SHOWING THE SIMILARITY OF THE COMBINED OUTPUT OF THE FOUR STATES WITH THE TOTAL OUTPUT OF THE UNITED STATES.
PACIFIC NORTHWEST REGIONAL PLANNING COMMISSION
NATIONAL RESOURCES COMMITTEE DISTRICT NO 11
MARSHALL N DANA CHAIRMAN
NOTE: DOTTED PORTION OF CURVES ESTIMATED FROM U S G S REPORTS AUGUST 31 1935
① ② SEE G DRAW Nº 22 FOR EXPANDED CURVES.
KILOWATT HOURS IN BILLIONS
0
1
2
3
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5
6
7
1904
1908
1912
1916
1920
1924
1928
1932
1936
1940
1944
1948
PACIFIC NORTHWEST
U. S. TOTAL FOR COMPARATIVE PURPOSES.
DRAWN TO 1/10 K. W. H. SCALE
WASHINGTON
MONTANA
OREGON
IDAHO
PORTLAND OREGON
NOVEMBER 1 1935

FIGURE 4.

transmission and distribution assigned to serve a definite area or a definite group of customers. In such a system no consideration is given to pooling the capacity of the energy resources nor of saving capital expenditures in equipment through the wider diversity of load possible by interconnection. This system has one and only one advantage: it is independent of any disturbance outside its limited areas.

Loosely connected: A loosely connected system is one made up of several minor system interconnected by small-capacity transmission lines and apparatus sufficient to transmit only a small amount of power from one minor system to another. The loosely connected elements are so arranged as to separate automatically at time of disturbance in one portion of the main system. The disturbance is then not reflected into the other areas. The capacity of interconnection is usually sufficient to transmit only a small amount of excess power from one minor system to another.

Rigidly connected network: A rigidly connected system is one in which the generating and transmission facilities are designed and operated as a unit. Such a system utilizes all of the transmission and generating facilities by taking advantage of the daily, seasonal, and yearly diversity of loads which occur over any wide area. It has the advantage of keeping the investment cost of the system at a minimum and making large blocks of power available at any point within the territory served by such a network. It has two distinct disadvantages in the fact that additions to the system may require some rather fundamental changes and that it is not flexible in its operation.

Synchronized at the load: In recent years, with the development of high-capacity generating stations, a power grid has been used in which the generating stations feed directly into a high-capacity network. This method is generally referred to as "synchronizing at the load." In such a system the large generators or groups of generators are often operated without any interconnection except at the point where they connect to the power grid. Such a system has all of the advantages of a rigidly connected grid without any of its inherent disadvantages.

Technical considerations.—The design of the superpower network requires careful analysis of both the electrical and mechanical elements considered separately and in their proper relation to the system as a unit. Such considerations of highly technical nature, involve the electrical and mechanical characteristics of various types of waterwheels, generators, transformers, transmission lines, and all other apparatus in the receiving and generating portions. Some of the important considerations are:

Power limits: The electrical elements of a transmission and generation system serve as the means whereby mechanical power is transmitted from the prime movers—that is, water or steam turbines—through industrial motors to industrial processes. The electrical characteristics of this interconnecting medium must be strong enough to bear the torque of power-producing turbines upon power-consuming motors. These electrical interconnecting media have torque limitations beyond which they fail to function and bring collapse to the whole system. This capacity is not a function of heating or voltage drop but is dependent upon inherent electrical characteristics and skill in design.

Stability: The stability of an electrical system is determined by the ability of that system to withstand disturbances such as short circuits, load changes, or normal switching without loss of its synchronism. Stability is a property of the transient electrical and mechanical characteristics of a system. It involves a coordinated study of mechanical and electrical inertias, the type of governors, governor response, and systems and speeds of generator excitation.

Some of the technical considerations for determining the power limits and stability of a large power network are:

(*a*) Generator design and generator reactance.
(*b*) Transmission line and transformer reactance.
(*c*) Synchronous condensers, size and location.
(*d*) Load characteristics.
(*e*) Voltage regulators and exciter characteristics.
(*f*) Governor response.
(*g*) Inertias of rotating machines.
(*h*) Grounding systems.
(*i*) Circuit breaker operations.
(*j*) Relay systems.

While each one of the above elements must be analyzed individually, it should also be considered in connection with the system as a unit. This is more than urgent if a superpower network is to be developed which will meet future operating requirements. These technical considerations are mentioned here for the purpose of indicating that the ultimate electrical system capable of disposing of the power from the Public Works power projects must be a system in which all of the technical features are carefully unified. They are mentioned primarily to point out the necessity of a coordinated plan of design which will be adequate to meet the electrical requirements of future operation.

Recommendations.—The recommended type of the main power network for the distribution of the large blocks of energy from high capacity generating stations is a modification of the system referred to as "synchronized at the load", which is a high voltage, high ca-

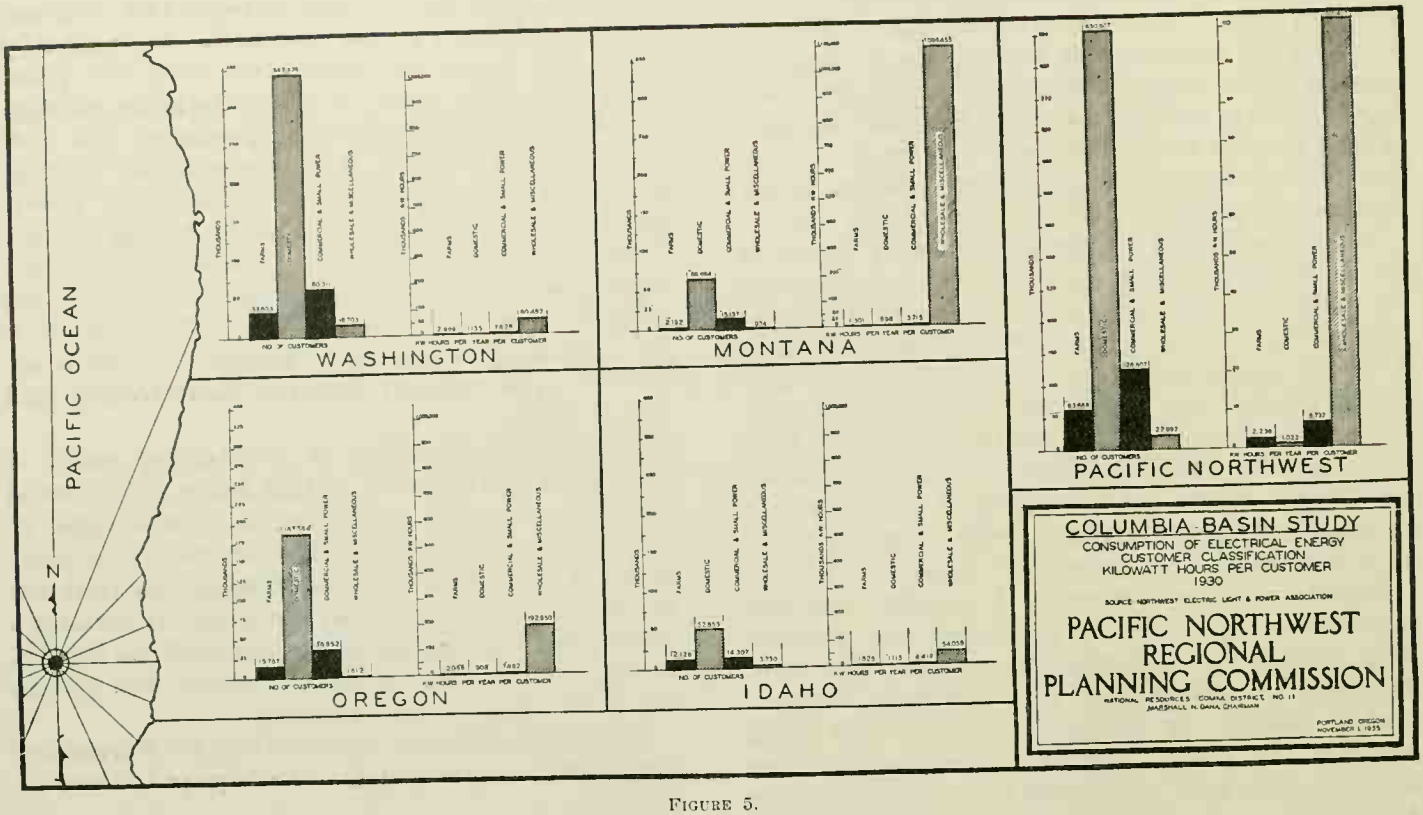

FIGURE 5.

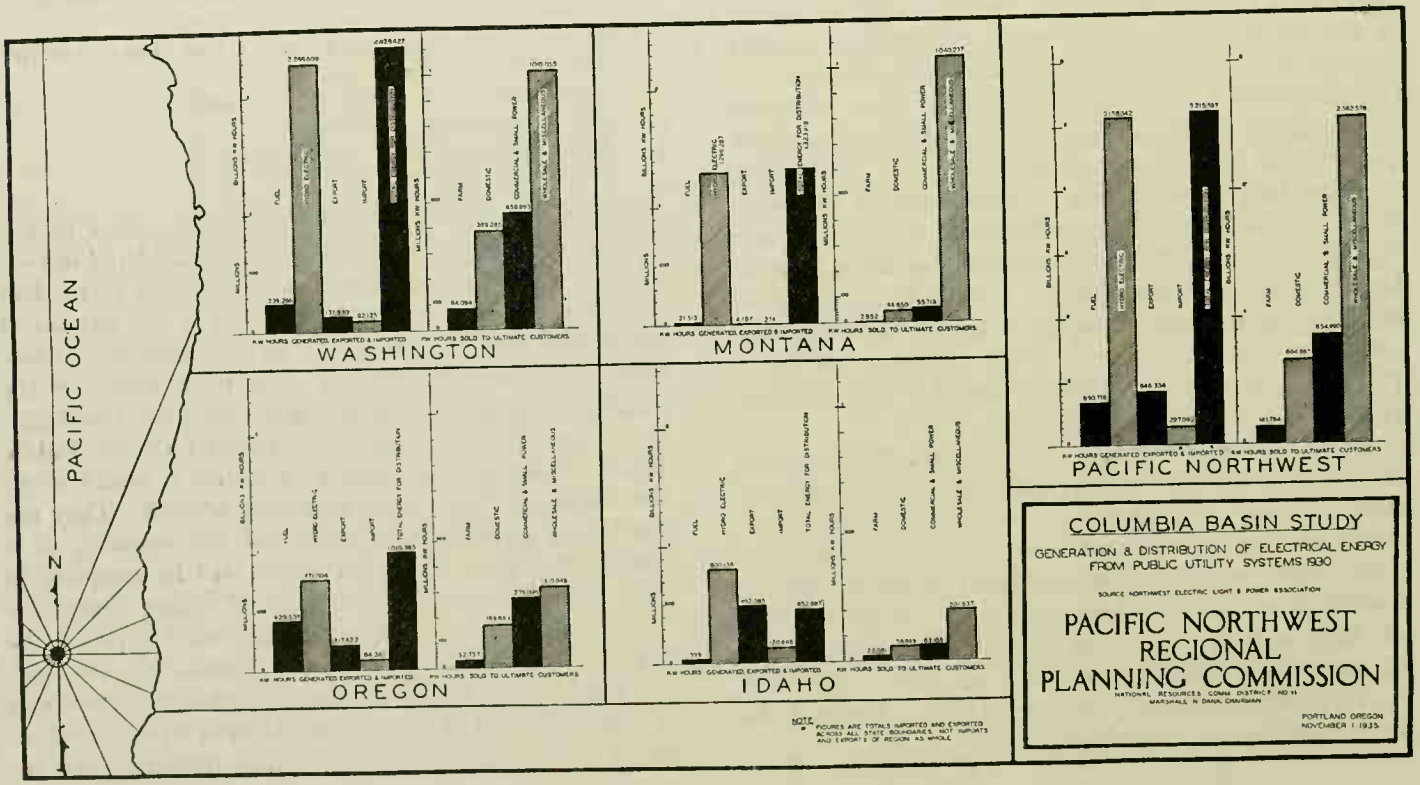

FIGURE 6.

pacity, constant voltage network with switching and transformer stations as shown on the accompanying illustration. This high capacity transmission bus or network would extend from Spokane westward to the Puget Sound area, thence north and south to the Portland region and Bonneville, thence up the Columbia Valley to the Grand Coulee project. The general shape of the network would be that of a large triangle with extensions from each of its three corners. The main substations would be located at convenient points for interconnecting with the existing transmitting and generating facilities and at points convenient to present and future loads. The voltage of this high capacity bus should be determined after careful consideration of all the problems, but it is thought that it will be in the order of 220,000 volts. The more distant future pattern of this superpower network is indicated in the same illustration. It indicates increasing the capacity of the original triangle by the construction of parallel lines, transmission feeders, and extending the transmission network eastward into the Great Falls and Butte territory and southeast along the Snake River.

The advantages of such a type of system for the region under consideration are many. They are outlined briefly as follows:

(*a*) Such a scheme permits the interconnection of existing and future plants with widely divergent electric and load characteristics. Power plants feed directly into the major network over transmission lines to the main power grid points.

(*b*) In the larger power plants of the size of Grand Coulee and Bonneville one or more generators are operated in connection with a single transmission line; the loss of any single transmission line would not seriously interrupt the energy supply system.

(c) The various generating stations are used not only to supply electrical energy to certain points of the network, but serve as a means of maintaining the voltage at a constant and uniform value.

(*d*) Future load growths will not require reconstruction of the major network because these loads could be supplied by the addition of main transmission lines from any generating station to a point adjacent to the increased load.

(*e*) The system of multiple high-capacity lines connected to the grid at different load centers is flexible enough to permit the switching and removing of any section of line or generators without interrupting the power supply.

(*f*) By grouping the large generating units in the major generating stations, the rupturing capacity and the cost of the large circuit breakers is reduced.

(*g*) The relay system is simplified.

(*h*) The investment in the substations is reduced by the lower cost of circuit breakers; by simplification of the relay scheme; and by the dual use of certain generating plants both for power supply and voltage control.

(*i*) The system as a whole becomes more reliable and is less subject to interruption.

(*j*) Transmission losses inherent with the transmission of large blocks of power are reduced.

(*k*) The system has all of the advantages of both the rigidly and the loosely connected network.

(*l*) The grid can be constructed progressively to meet load demands.

Future Electrical Energy Estimates

Energy output.—The total amount of electrical energy generated in Idaho, Montana, Oregon, and Washington, in public utility power plants, has increased from 50,000,000 kilowatt hours in 1902 to 6,750,000,000 kilowatt hours in 1935 (estimated, figs. 4 and 9).

Today this Nation is on the threshold of the greatest technical and industrial advance of history, a scientific era to be ushered in with a veritable flood of discoveries and achievements, the culmination of years of the most extensive and intensive research of all past ages.

With the knowledge that these potentialities exist, but without any possible measurement of their effects, an estimate of the future electrical energy requirement can be only a poor approximation. We have every reason to believe, however, that this region with its vast wealth of natural resources in minerals, forests, agriculture, and water-power will play an important part in the new industrial expansion.

Power policies, rate structures, location and nature of transmission facilities, economic conditions, industrial developments, promotional activities, and regional cooperation will have an important bearing on the future electrical energy consumption of the region. The relative influence of these factors will constantly change, at times at such an accelerated rate that important changes must be made quickly to meet the new conditions. The importance of these factors to the trend of the future electrical energy consumption cannot be exaggerated.

When full consideration is given to the impact of such large blocks of low-cost hydroelectric energy released simultaneously with reclamation developments and accelerated exploitation of other natural resources, the combined effect of all these forces indicates not an overabundance of potential water power to meet the future requirements of the region, but the ultimate necessity of supplementary energy sources.

The factors which have brought about past great increases in the uses of electrical energy are still operative (barring a slackening during general depression);

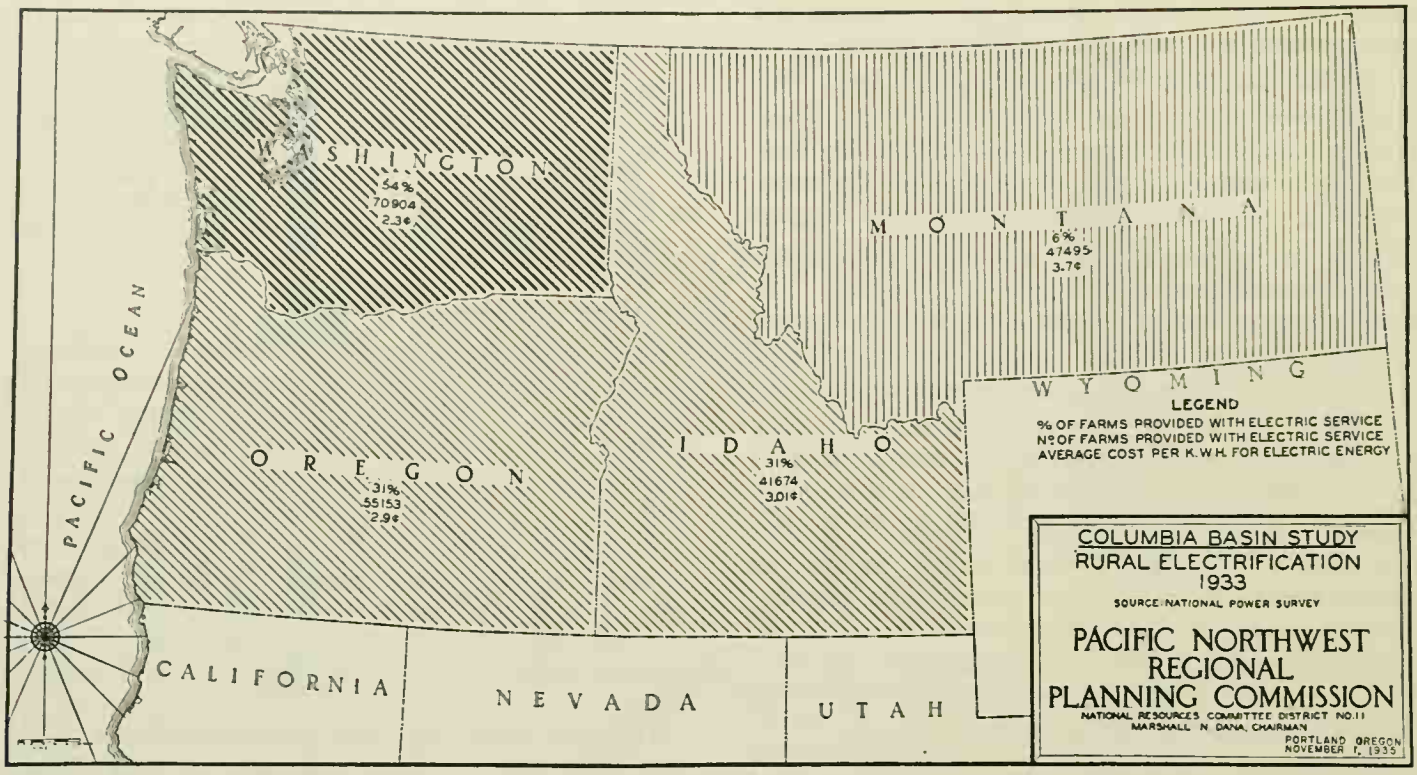

FIGURE 7.

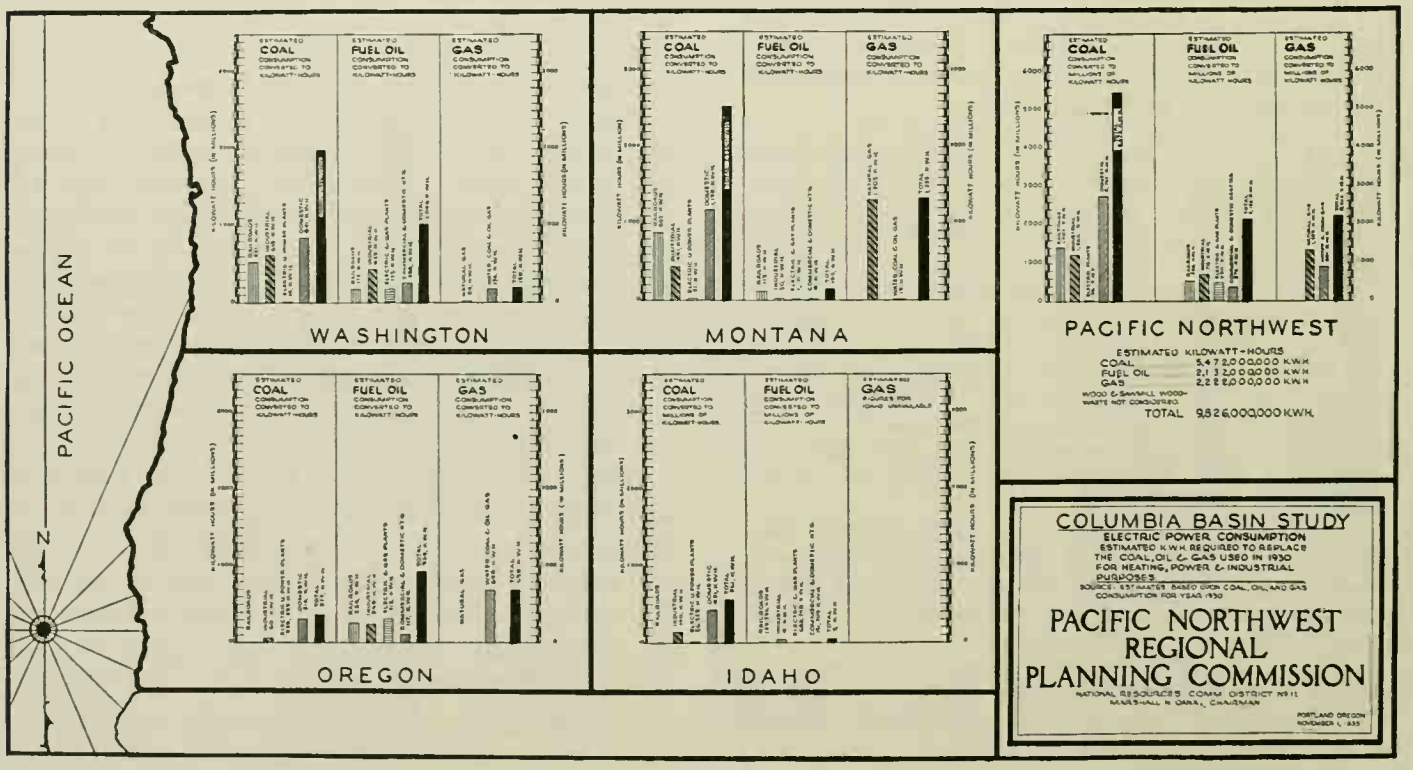

FIGURE 8.

saturation of the power market is not yet in prospect. These factors, although generally well known, may be summarized:

Increase in buying power.
Increase in population.
Increase in per capita use.
Service of new areas.
Increase in proportion of homes served.
Increase in uses in homes.
Increase in use of home and farm appliances.
Increase in uses in agriculture and forestry.
Decrease in cost of equipment and installation.
Decrease in cost of power.
Development of new industries.
Decreased use of mechanical power; substitution of electrical energy in industries, transportation, etc.
Decentralization of industries (toward Pacific Northwest); increased self-supporting capacity of region.
Increased per capita manufacturing activity.
Technical advances in electrical utilities and industries.
Increased volume and raised standards of lighting (streets, highways, public places, homes, etc.).
Higher general standards of living.

In addition, there is a possibility of increased future exportation of energy from a region so well endowed with power-producing capacity.

When a number of factors such as these are operative, they tend to over-lap in their effects, causing compounding or spirally increasing usage. All of these factors should be operative in the Pacific Northwest. In some cases—as, for example, per capita use, domestic use, new territory—the opportunities may appear to be less than in the country at large because of present relatively high averages in the region. However, in a water-power country, such as the Pacific Northwest, the potential average use may continue to be higher. In other cases—as new industries, and increased manufacturing activity—factors may have considerably greater effects here than in the country at large.

The most complete and comprehensive study has been made by the Corps of Engineers, United States Army. This study, based upon past trends and future known possibilities, indicated that the probable amount of electrical energy to be generated to meet the requirements of Idaho, Montana, Oregon, and Washington for 1947 would be 18,000,000,000 kilowatt-hours. Eighteen billion kilowatt hours is the estimated combined energy output of firm power of the existing economical generating stations, plus the Bonneville and Grand Coulee projects (Fig. 9).

In view of only a partial economic recovery and the actual demand for electric energy exceeding all previous records, these estimates may now be unduly conservative. As the actual demands for electrical energy have always exceeded the prediction of the boldest who have dared to prophesy, so will the actual future electric-energy requirements of this region exceed any intelligent estimate we may now make.

Power in regional development.—Electric power is so intimately related to the social, economic, and industrial development of the region that the release of large blocks of low-cost energy presents certain considerations which should be carefully weighed in formulating the general power policy or establishing the kind of agency which will administer it.

The Public Works projects, which are a theme of this report, were set in motion as a part of a great national effort to relieve a most critical unemployment emergency. Their importance, both locally and nationally, in relieving that critical situation is beyond any question. They will continue to serve this purpose throughout the construction period. When all the power from these projects is economically utilized, there may be no less than a quarter of a million new employment opportunities.

If these projects are to serve the region and Nation according to the principles upon which they were conceived, or if they are to establish the ideal for which they were created, then all policies concerning their planning, construction, and operation must be based on a complete and comprehensive economic and industrial survey. Such a survey is the true point of beginning and should be undertaken at once.

Flood-Control Problems

The necessity of a national flood-control policy, with supporting State measures and active participation, is well illustrated in the Pacific Northwest. The danger to life and property from flood flows is a serious consideration along the lower Columbia River and on many of its tributaries, in the Puget Sound area, and in the deltas of the coastal streams. It is estimated that over 950,000 acres of land in the region, a large part of which consists of rich bottom lands, are susceptible to overflow, with an average annual flood damage of over $2,000,000. Local interests, and the Federal Government during the last few years, have undertaken limited and largely temporary protective works but, in general, no comprehensive and coordinated plan for flood protection has been undertaken in any of these areas. The protective works completed, in general, have consisted of levees, bank protection, and installation of drainage facilities, and it is estimated that over $31,000,000 has been expended on such protection.

The Federal Government, through the Corps of Engineers, has undertaken the preparation of coordinated

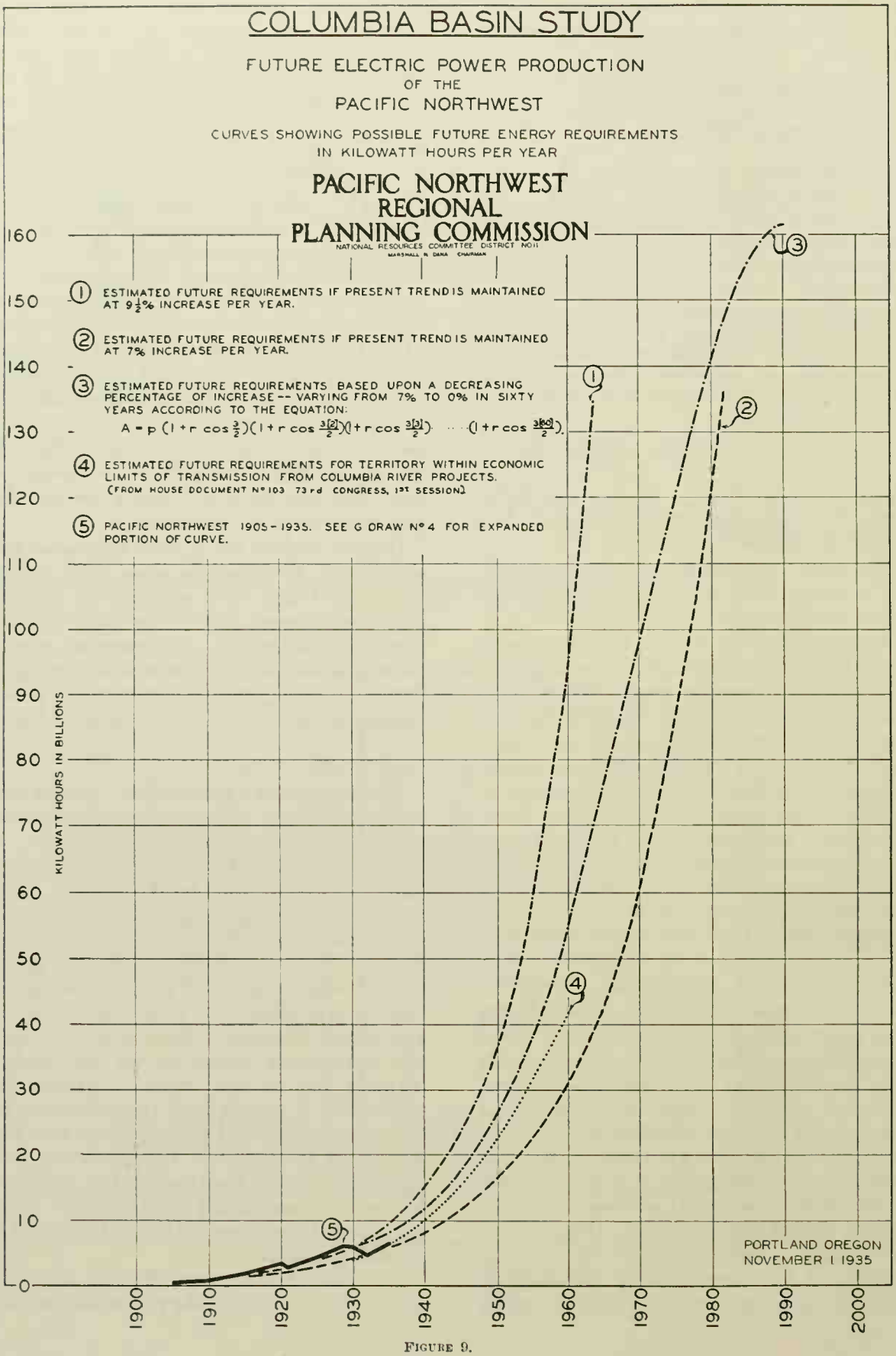
COLUMBIA BASIN STUDY
FUTURE ELECTRIC POWER PRODUCTION
OF THE
PACIFIC NORTHWEST
CURVES SHOWING POSSIBLE FUTURE ENERGY REQUIREMENTS
IN KILOWATT HOURS PER YEAR
PACIFIC NORTHWEST
REGIONAL
PLANNING COMMISSION
NATIONAL RESOURCES COMMITTEE DISTRICT NO 11
MARSHALL N. DANA CHAIRMAN
① ESTIMATED FUTURE REQUIREMENTS IF PRESENT TREND IS MAINTAINED AT 9½% INCREASE PER YEAR.
② ESTIMATED FUTURE REQUIREMENTS IF PRESENT TREND IS MAINTAINED AT 7% INCREASE PER YEAR.
③ ESTIMATED FUTURE REQUIREMENTS BASED UPON A DECREASING PERCENTAGE OF INCREASE -- VARYING FROM 7% TO 0% IN SIXTY YEARS ACCORDING TO THE EQUATION:
$A = p(1+r\cos\frac{3}{2})(1+r\cos\frac{3[2]}{2})(1+r\cos\frac{3[3]}{2})\cdots(1+r\cos\frac{3[60]}{2})$.
④ ESTIMATED FUTURE REQUIREMENTS FOR TERRITORY WITHIN ECONOMIC LIMITS OF TRANSMISSION FROM COLUMBIA RIVER PROJECTS. (FROM HOUSE DOCUMENT N°103 73rd CONGRESS, 1ST SESSION)
⑤ PACIFIC NORTHWEST 1905-1935. SEE G DRAW N°4 FOR EXPANDED PORTION OF CURVE.
KILOWATT HOURS IN BILLIONS
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
160
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
2000
PORTLAND OREGON
NOVEMBER 1 1935

FIGURE 9.

plans for the protection of the areas in the regions subject to damage, and is making studies to determine the justified investment in such works. These studies, as yet, are incomplete, and the final plan of protection must await their completion. In general, it appears that the most feasible plan of protection will consist of levees, bank revetments, bypasses, and headwater storage reservoirs operated for the combined benefits of flood control, power, and possibly navigation and irrigation use.

Fisheries

Early explorers to the Pacific Northwest found the Indians catching large quantities of salmon at favorable locations, as on the Little Spokane River, on the Columbia at Kettle Falls and Celilo Falls, on the Williamette at Oregon City, and on Puget Sound and along the coast, where halibut were also caught. By 1870 the salmon industry had begun to assume some importance, and by 1890 the halibut industry was well under way. With general development of the region these industries continued to grow in importance.

Marine fishes, such as the halibut and flounder, spend their entire lives in the sea and, excepting the strain imposed upon them by the fisheries, they are but little affected by civilization. The anadromous fishes, as the salmon and steelhead trout, migrate to the streams and lakes as breeding adults to spawn, and these are affected in many ways by civilization's advance. Logging operations and overgrazing have destroyed covering vegetation along some of the spawning streams, with resultant stream temperature increases beyond the tolerance of some fish; have caused a quicker run-off of drainage water, with resultant stream scour and destruction of spawn and young fish; and have caused soil erosion which, by smothering the gravel beds with mud, have made some streams unfit for spawning. Pollution from industrial plants renders some streams unfit for fish life. Dams are barriers to migratory fish seeking spawning grounds unless definite provision is made to pass the fish over the dam. Diversion canals, unscreened at their intakes, lure thousands of migratory and game fish to destruction. To preserve our valuable salmon and trout fisheries coordination between that industry and other natural resources activities is essential.

Several of the Pacific Northwest fisheries are interstate and international in character. The halibut fishery extends from the north California coast to Bering Sea and is now regulated by an International Commission operating under a treaty between the United States and Canada. Practically all sockeye salmon caught in Puget Sound and on the banks just outside the Strait of Juan de Fuca, are spawned in the Fraser River and return to that stream as mature adults. A rock slide, in 1913, blocked the river to ascending salmon and greatly reduced the run for several of the 4-year cycles following. Heavy fishing also caused depletion, though there has been a gratifying increase in the number of sockeye since 1926. A treaty providing for the study and rehabilitation of this fishery, already ratified by Canada, is now pending in the United States. The Columbia River fisheries are interstate and, to some extent, international, as the chinook and silver salmon, hatched in the Columbia, are caught off the coasts of British Columbia and southeastern Alaska.

The commercial fisheries of Washington and Oregon rank about nineteenth in value of all the industries of those States. They employ about 12,000 fishermen whose aggregate annual catch approximates 150,000,000 pounds. The value of this catch, to the fishermen, approaches $10,000,000 and its retail value, after processing, approximates $25,000,000. The manufacture of supplies and equipment for the industry, and the distribution of the fisheries products, employ an additional 4,000 persons. These fisheries produce valuable byproducts specially related to this region. The poultry industry requires large quantities of protein food and this is partially supplied in the form of fish meal. Pacific fish oils are replacing foreign cod-liver oil. These oils are also used in the manufacture of soaps, paints, tree sprays, and other articles.

Although the tributaries of the Columbia in Idaho and Montana provide important spawning grounds for the salmon, the commercial catches are made either in the ocean or in the lower reaches of the Columbia in Washington and Oregon, where also are located the canneries and packing plants. All species of Pacific salmon are represented in the Washington and Oregon catches. The main salmon fishing areas are the lower 150 miles of the Columbia, Swiftsure banks with the area just outside the Strait of Juan de Fuca, and Puget Sound. Other fisheries include the sturgeon, lingcod, rockfish, sablefish, herring, flounders, shad, and smelt. The sturgeon catch is mainly in the Columbia. Flounders are taken in Puget Sound and at many places along the coast. Shad, which are found in the Columbia, were introduced from the Atlantic seaboard. The crab fishery is carried on in Puget Sound and at many locations along the Washington-Oregon coast. Razor and other varieties of clams are in commercial production in Washington and Oregon, as are also the Japanese oyster, introduced from Japan, and the small oysters native to the Pacific coast.

Sport fishing constitutes one of the great recreational assets of the Pacific Northwest. The region abounds in fine fishing streams and lakes, in which are found

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FIGURE 10.

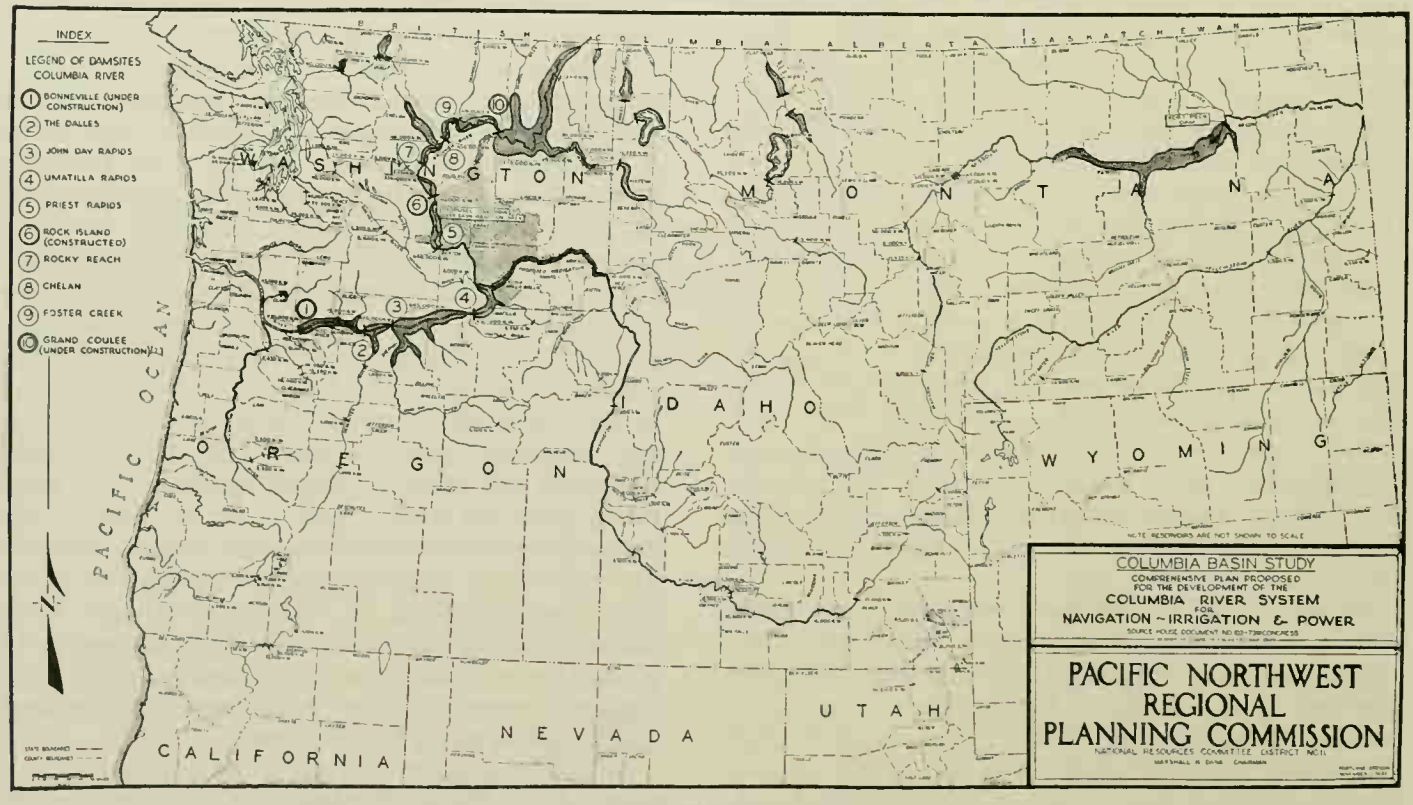


FIGURE 11.

many varieties of trout, black bass, yellow perch, whitefish, and other species, some native and some transplanted from the East. The greatest concentration of sport fishing for salmon is in Puget Sound, but the Cowlitz and Willamette Rivers and numerous coast streams also afford fine salmon fishing. Steelhead trout are among the gamest of sport fish. Specimens may weigh as much as 25 pounds when returning from the ocean to fresh water on their spawning migration. The Rogue and Umpqua Rivers in Oregon and the Green, Satsop, and Stillaguamish in Washington are famous for this species.

Of the total annual value of Washington and Oregon fisheries, the salmon contributes about three-fourths and the halibut comes next with about half the remainder. For the 3-year period, 1929–31, the average annual return to the fisherman was $7,201,000 for salmon, $1,354,000 for halibut, and $1,166,000 for other fish and shellfish. The main contributions to the latter item were: oysters, $340,000; clams, $202,000; crab, $135,000; smelt, $51,000; and shad, $34,000.

The important fisheries of the region are now being exploited to near their maximum and, under present conditions, future expansion cannot be expected. The sturgeon are suffering from overfishing. A few species, the razor clam for example, are in danger of depletion. The lingcod, rockfish, sablefish, cod, and flounder fisheries could be expanded if a greater demand for the product could be created. It should be noted that the use of fish is less in this region than in other sections of the United States, and decidedly less than in other sections of the world. By continuous scientific investigation of our fisheries, and by proper coordination with other natural-resources developments, the abundance of fish and the magnitude of the fisheries industry may be increased. The Congress should provide adequate funds for a fisheries program designed to rehabilitate the now endangered species, to prevent depletion of other species normally abundant, and thus to forestall a possible decline of the industry.

Irrigation

In the semiarid sections of the region east of the Cascades, much of it with an annual rainfall of less than 12 inches, irrigation is absolutely essential to successful agriculture. Also, west of the Cascades, with its substantial annual precipitation, there are numerous sections so deficient in summer rainfall as to make irrigation necessary to economically profitable agriculture. That the small area now irrigated on the west side is destined to be materially expanded, there can be no question. Since the earliest ventures in the region, about 1860, irrigation has progressed from the direct diversion and small bottom-land ditch serving a few acres to the greater reservoirs and the longer and larger canals with their splendid structures of concrete and steel, serving extensive upland areas, such as we have today. With expansion and improvement of irrigation works in their physical aspect, there came progressive change in the forms of ownership and control. These passed successively from individual to partnership control, then to corporate control, and finally to district control. There have been some minor attempts at reclamation as State enterprises but, more important, the Federal Government also embarked upon a program of land reclamation by irrigation.

This Federal service came into being when it was recognized that there was need for increased national aid of western agriculture and when it was patent that financing of the more important undeveloped irrigation projects, on account of their magnitude and the great aggregate cost involved, was beyond the capacity of ordinary private enterprise. Incidentally, too, the Federal Government had a large stake in these developments because of its own extensive proprietary interest in the region. Since passage of the Reclamation Act in 1902, the United States Bureau of Reclamation has steadily continued its beneficent work of land reclamation and with profoundly important economic effect not only upon the West but upon the Nation as a whole. It has been the most vital single factor in the general irrigation development of the region.

Present irrigation.—For the region west of the Continental Divide, the area now being irrigated is estimated at 3,609,000 acres and the area irrigable under existing projects is estimated at 5,211,000 acres. Of the total irrigated area just stated, that included within Federal projects amounted to 682,000 acres, being 512,000 acres for the United States Bureau of Reclamation and 170,000 acres for the United States Indian Service. Of the total irrigable area, about 1,000,000 acres are embraced in Federal projects. To the end of 1934, the Federal projects represented 19 percent of the total irrigated area, 19 percent of the total irrigable area in existing projects, and 38 percent of the total investment in irrigation works. For a Pacific Northwest region that would include, in their entirety, the States of Washington, Oregon, Montana, and Idaho, the 1930 census reported the area actually irrigated as 5,175,000 acres and the area that the enterprises could supply with water as 6,683,000 acres.

Irrigation costs and returns.—Construction costs, per acre, have varied from as little as $5 for some of the earlier bottom-land projects to as much as $150 or more for some of the later developments. The total investment in irrigation works, as of 1934, approximated $230,000,000, or an average of $44 per acre, for the

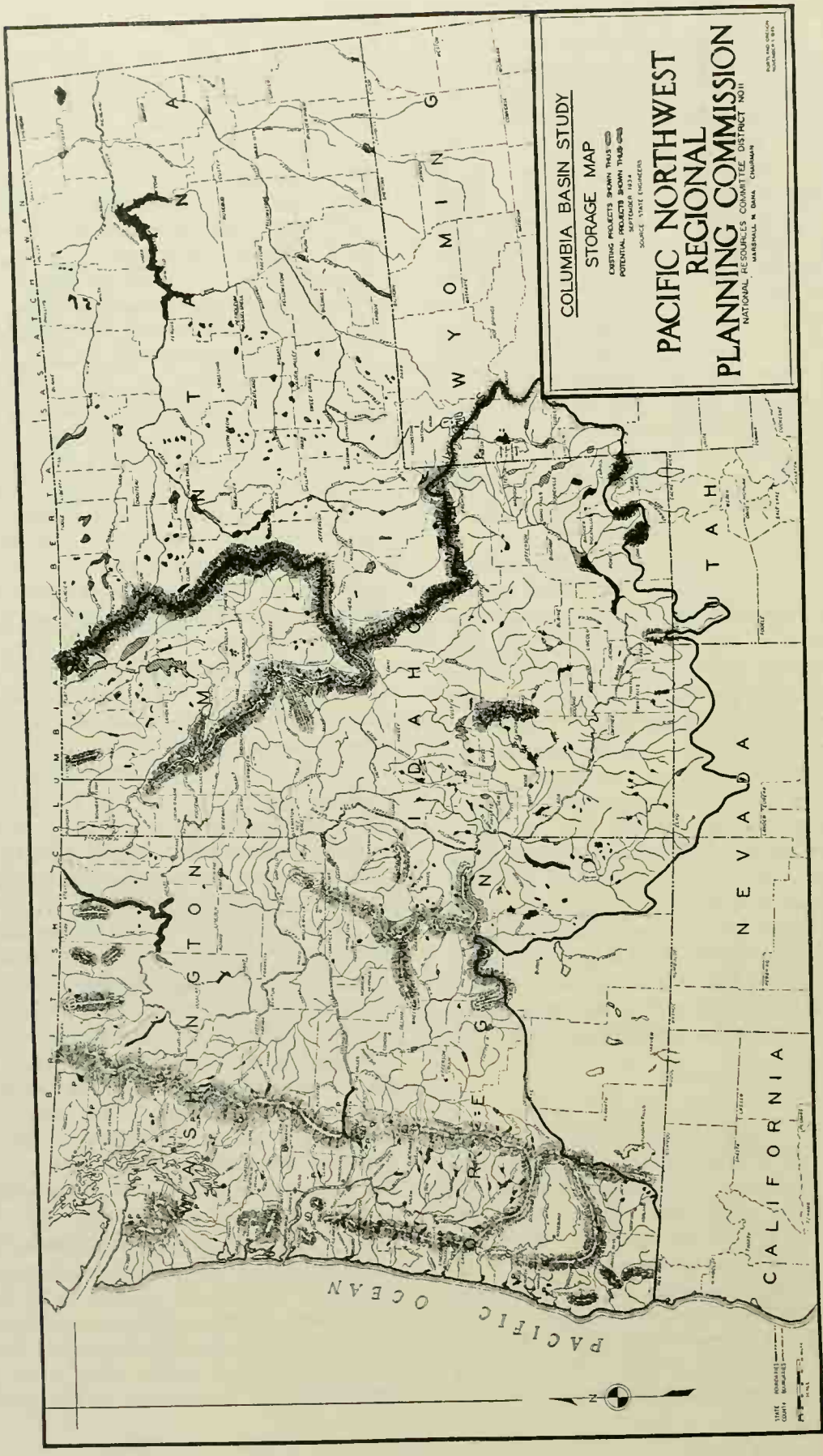

PACIFIC NORTHWEST
REGIONAL
PLANNING COMMISSION
NATIONAL RESOURCES COMMITTEE DISTRICT NO. 11
COLUMBIA BASIN STUDY
STORAGE MAP
EXISTING PROJECTS SHOWN THUS
POTENTIAL PROJECTS SHOWN THUS
SEPTEMBER 1934
SOURCE STATE ENGINEERS
WASHINGTON
IDAHO
MONTANA
WYOMING
NEVADA
UTAH
CALIFORNIA
OREGON
PACIFIC OCEAN

FIGURE 12.

irrigable area the projects are designed to serve. The annual operation and maintenance costs have averaged about $1.80 per acre, ranging, however, from $0.25 per acre for the cheapest gravity projects to $20 per acre for the more expensive pumping projects. As to crop return, that for irrigated land will easily average double that of nonirrigated land. With fair crops and fair prices the area now under irrigation in the region will produce crops of a gross annual value of $160,000,000, or about $45 per acre. In certain sections, particularly where a considerable fruit and vegetable acreage is included, this figure may be greatly exceeded. For example, the 1929 returns from Washington's irrigated area approximated $150 per acre. It will be noted that the above estimated annual crop return of $160,000,000 is about 70 percent of the total investment in irrigation works.

Potential irrigation.—The irrigable area of feasible new projects is estimated at 4,700,000 acres, the ultimate total of irrigation within the region thus becoming practically 10,000,000 acres—an area whose crop returns will easily exceed $300,000,000 annually. Excepting areas that may be served directly from the Columbia River, the region's irrigable land area exceeds that which can be served by its feasibly available water supplies. It is the latter that fixes the limit of ultimate irrigation. Our water supplies, therefore, must be carefully conserved, both by wise use and by maximum reduction of waste. Flood flows should be stored; return flow should be utilized; new developments should be confined mainly to projects having the largest proportion of good land; and, in sections of presently deficient water supplies, new developments should await the replenishment of existing supplies for the better lands already under irrigation. Among the major potential projects are the 200,000-acre extension of the Twin Falls south side project in Idaho; the 400,000-acre Mountain Home-Sunnyside project in Idaho; the 166,000-acre John Day project in Oregon, which may ultimately embrace 1,000,000 acres; and the 1,200,000-acre Columbia Basin project in Washington. Present Federal allocations for both old and new reclamation projects in this region approximate $34,000,000, of which $23,000,000 is for the Grand Coulee Dam as part of the Columbia Basin project.

West side irrigation.—There has, as yet, been limited irrigation development west of the Cascades. A relatively high annual precipitation and a relatively high humidity, even in summer, have served to discourage such development. However, despite the rather substantial annual precipitation, its 3 inches or less of summer rainfall, when water is most needed by the crops, is less that of many irrigated sections on the east side. The cost of west-side irrigation should, in general, be much less than that of the east side due to the shorter irrigation season, the lesser amount of water required, and the more readily available water supplies. Unquestionably, the agricultural output would be increased by such irrigation and unquestionably, too, the expense involved would, in many instances, be fully justified economically. About 12,000 acres are now irrigated in western Washington and 65,000 acres in western Oregon, of which about 10,000 acres are in the Willamette Valley. A recent study, made by the Oregon State Planning Board, reports 1,140,000 acres of irrigable land in that valley. A more detailed investigation of the valley is now being made by the Corps of Engineers, United States Army. It is easily conceivable that west-side irrigation may ultimately amount to as much as 1,500,000 acres.

Storage.—The earlier projects with good water rights required no storage. The later projects have required some storage and new projects, excepting Columbia River pumpage projects, are very largely dependent on storage. Existing irrigation storage aggregates about 7,200,000 acre-feet. The total irrigation storage feasibly obtainable within the region is not less than 20,000,000 acre-feet. This means that of the ultimate irrigation requirement of 50,000,000 acre-feet per year, 40 percent will be provided from storage and it is believed that such storage provision will suffice. The ultimate storage within the region, for all purposes, is estimated as 50,000,000 acre-feet.

Benefits of irrigation.—That irrigation has been a factor of vital economic significance in western development, and that Federal reclamation activities have been highly important and entirely wholesome and beneficial, not alone to the West but to the entire Nation, cannot be doubted. National benefits include an expansion of population and of national wealth, a broader basis for economic security, and a line of defense back of its Pacific seaboard that is of high military value. The benefits to the States and to the local areas concerned are too obvious to require review. The irrigation projects and the towns within their areas have provided homes and livelihoods for over a million people, an achievement of high social and economic importance to State and Nation. The region's 5,000,000 irrigable acres yet to be reclaimed will entail a cost of at least a half-billion dollars. The projects are mainly of a magnitude unattractive to private capital and their development will require a large measure of Federal financing. It is imperative, therefore, that the present policy of Federal reclamation be continued unimpaired.

The Columbia River and Its Development for Navigation, Power, Irrigation, and Flood Control

The comprehensive program for the development of the region is founded, in large part, upon the abundant, strong, ever-flowing waters of the Columbia. Irrigation, navigation, power, flood control, fisheries, public and industrial uses, and recreation, each affect essential elements of a master plan. These duties of the water are woven into a series of coterminous multipurpose projects which form a substructure for the future development of the region.

The consummation of the comprehensive plans for the Columbia and its major tributaries will ultimately place more than 4,000,000 acres of additional land under irrigation, provide for over 800 miles of inland navigation, and make available about 11,000,000 kilowatts of low-cost power.

These possibilities, unrivalled for power and irrigation in the country today, constitute a magnificent challenge to the statesman, the economist, the engineer, and the citizen at large, through the opportunity to create new homes, new opportunities, and greater wealth and security for millions of people.

Grand Coulee and Bonneville, two key projects of the comprehensive plan, are now under construction.

Grand Coulee, a reclamation and power project, which will store over 5,000,000 acre-feet of water behind a high dam across the upper river, is the heart of the plan. At this dam, when the project is complete, the waters of the Columbia will generate 1,890,000 kilowatts, and carry an average annual load of 1,280,000 kilowatts without further storage development in Canada. Having generated this power, these waters then pass downstream for further duty in power production, irrigation, navigation, and other purposes. The Columbia Basin or Grand Coulee reclamation project, with an indicated 1,200,000 acres of irrigable land, also supports the development of this project. Assuming only two-thirds of this acreage, made productive only to the extent of the average of the present irrigated land of the four States, there would be an annual gross value of product of over $37,000,000 from irrigation alone. The power return at only $8 per kilowatt year, from only one-half of the capacity would be $4,800,000 per year, exclusive of additional returns from downstream power plants (including about $800,000 per year at Bonneville).

Bonneville, a navigation and power project located on the river at the head of tidewater is the first unit of the inland-waterway system. The initial power development of this project will be 86,000 kilowatts, the ultimate 432,000. The firm-power output of this plant will be materially increased by the final storage at the Grand Coulee project. With the completion of the Bonneville dam and its lock, 500 by 76 feet, and the dredging of the channel downstream to Vancouver, ocean navigation for vessels drawing up to 26 feet will be extended 82 miles further up stream than at present.

Between Bonneville and Grand Coulee on the main river, seven future projects are designated. The lower three of these, together with the canalization of the lower Snake River will ultimately provide for inland navigation to the vicinity of Lewiston, Idaho, nearly 500 miles from the sea.

The details of the comprehensive plans for the Columbia River and its tributaries may be found in the reports [1] of the Corps of Engineers, made pursuant to the provisions of House Document 308, Sixty-ninth Congress, first session. Elements of the subject are touched upon also at various points in this report, including the parts of this section (II) and the appendixes, relating to water resources, waterways, transportation, irrigation, and power.

Land Resources

Land, Soil, and Cover

While the four States cover an area of 253,000,000 acres, only about 7 percent, or 17,600,000 acres, in 1929 was devoted to agriculture. Timbered areas cover 93,299,000 acres. Mountainous country, water surfaces, and regions at present suited largely to grazing or game preserves, constitute the remainder. This comparatively small acreage of farm lands contains a considerable variety of soil types and farming conducted under varying climatic conditions.

Along the coasts of Oregon and Washington, the soils are of a yellowish brown with a yellow subsoil. This same formation extends up the Chehalis River and portions of the Cowlitz Valley in Washington, up the Columbia River on both sides part way to Portland, and up the Umpqua River into Douglas County in Oregon. The fertility of this soil is evidenced by the excellent farm production and by some of the finest stands of timber in the region.

From Centralia in Washington, north to Everett and surrounding Puget Sound, the soils are largely glacial and gravelly, with little water-holding capacity. This is not true along the river bottoms, where, over the centuries, rich silts have been spread by annual floods. In such areas, some of the most fertile soils in the region are found.

[1] See H. Doc. 103, 73d Cong., 1st sess.; H. Doc. 263, 72d Cong., 1st sess.; H. Doc. 190, 73d Cong., 2d sess.; H. Doc. 395, 73d Cong., 2d sess.

The Willamette Valley area in Oregon runs to brown soil with a red subsoil, and where properly drained and fertilized produces abundantly. This is the largest body of land west of the Cascades devoted to farming.

Throughout the mountainous regions of the Cascades, the Coast Range and Olympics, the cover is mostly timber. In these areas, the development of certain shoestring valleys has produced problems which the Forest Service, the Resettlement Administration, and other public agencies are now trying to solve.

In central Oregon and Washington, the rainfall is not sufficient to assure the successful raising of crops. In considerable portions of these areas, wind erosion is taking place.

In the wheat-growing areas of eastern Oregon and Washington, the soil is a rich sandy loam, subject to water and wind erosion where proper safeguards have not been adopted.

Excepting for some valleys in northern Idaho, the wheat-raising district of the Palouse and certain sections around Lewiston, most of the area north of the Snake is mountainous and timbered. Agriculture is largely centered in southern Idaho where irrigation is available.

In Montana, in the valleys west of the Continental Divide, soil and rainfall are productive of fruits and diversified farming. East of the Rockies in the Great Plains country, dry farming on the light soils has been attempted with doubtful returns. Along the Yellowstone and the easterly portion of the Missouri, rich alluvial soils are present.

Land Problems

Because of the variety of soils and climatic conditions, numerous land problems have developed; already those of shoestring valleys, of wind and water erosion, of over-extended dry farming have been noted. In the attempt to solve these problems, land classification and soil surveys in each of the States have been undertaken. This work is now under the supervision of the Resettlement Administration, and until such research is completed basic planning will be limited to that extent. In the earlier reports of the land consultants, problem areas have been designated and resettlement areas located. The problem of tax delinquency and the handling and management of such lands as do revert to the counties, requires the utmost in cooperation between Federal, State, and county officials. Certain extensive areas have been examined for game preserves and refuges, others for inclusion in the adjoining forest reserves, and still others for grazing.

In the various reports of the State land consultants, considerable information bearing on land problems is presented in the form of statistics and maps. In a coordinated report by H. H. Henry, regional land consultant, and in the report of R. F. Bessey, regional consultant, for the period January 1934 to January 1935, most of this is brought together in a brief summary. In April 1935 A. S. Burrier, Oregon land planning consultant, prepared the Agricultural Lands in the Williamette Valley, Oreg. (a preliminary report). Similar reports have been issued for the States of Idaho and Montana.

Agriculture

Agricultural development in the Pacific Northwest followed closely the pioneer trappers and prospectors. It is characterized by a great diversity of climate and soils and specialization. A progressive attitude is shown toward improved methods for production, in adaptation to peculiarities of climate, to control of pests and diseases, and the development of better living conditions on the farm.

Irrigation is notably important in all four States and particularly so in relation to this report since increase in irrigated lands offers one of the best aids to the current resettlement program. The dependability of properly developed irrigation farming is well understood, yet, recent dry seasons have led to many losses due to insufficient water supply or excess land coverage.

Agriculture ranks second only to the forests in the values produced in the region.

Problems.—The problems of agriculture in the region are many and varied; most of them being handled by well established and ably managed agencies, such as the United States Department of Agriculture with its many subdivisions and representatives in the Northwest, the Federal Land Bank, the United States Bureau of Reclamation, the Resettlement Administration, the Rural Electrification Administration, the several agricultural experiment stations and extension services, State departments dealing with similar matters, etc. Most vitally pertinent to this report is the work of the Resettlement Administration, since the creation of farm homes on new irrigation projects will aid directly in its problem of caring for farm families who must be given better opportunities for making a living.

The decided need for more manufacturing activity in order to increase local markets and thus more nearly balance the internal economic situation is brought out clearly in the analyses of transportation and of industry.

Promotion of cooperative activities relating to agricultural development, particularly those relating to

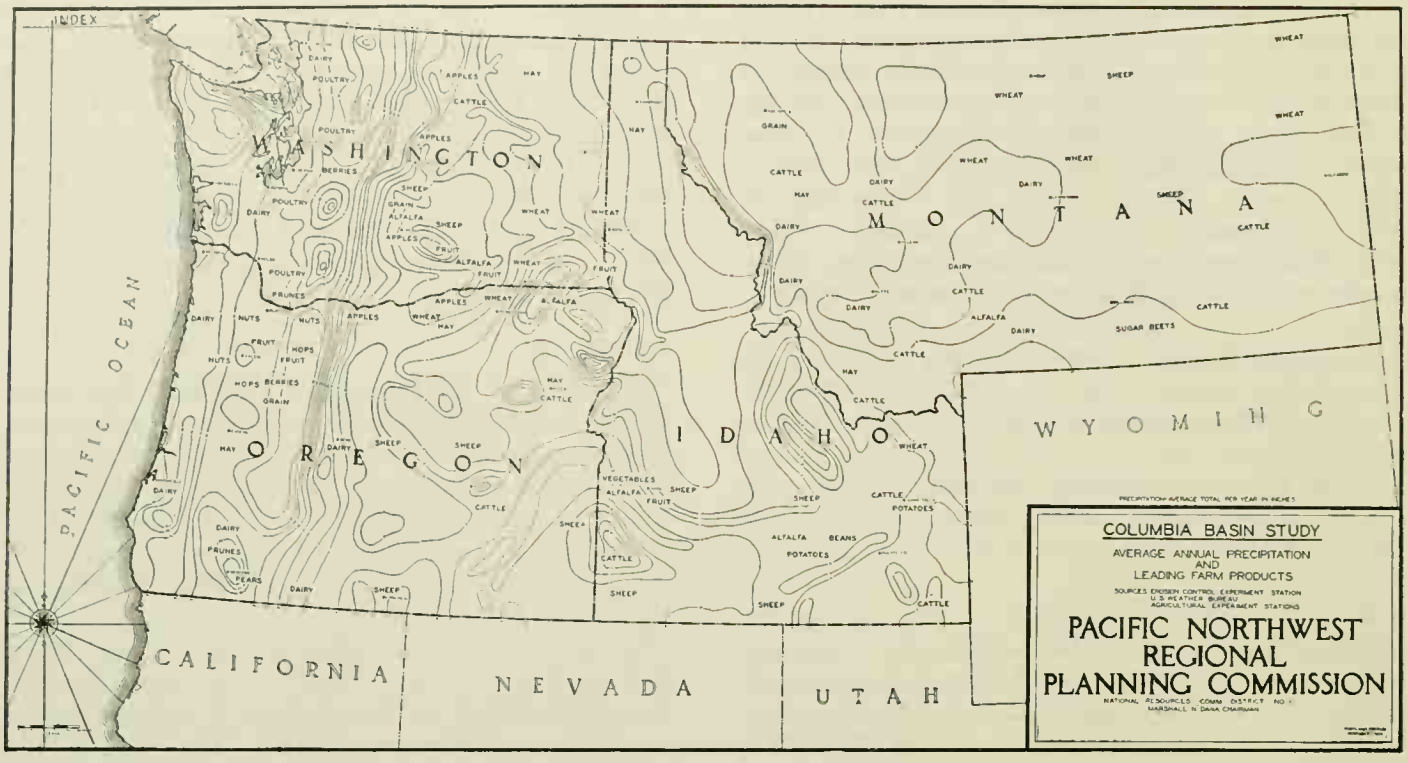


FIGURE 13.

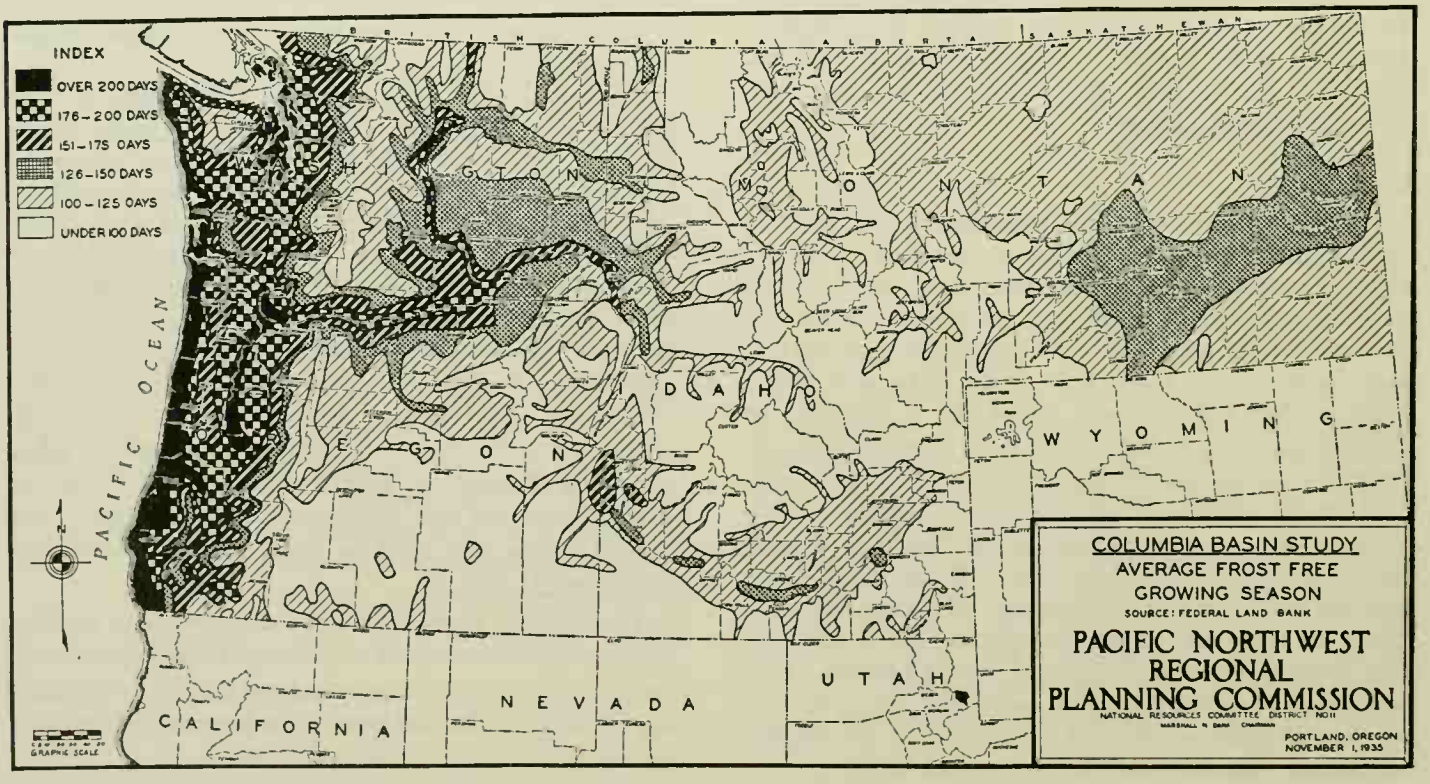


FIGURE 14.

all forms of water use, can well be made a major service to be rendered by the Pacific Northwest Regional Planning Commission.

The readjustment problems in the field of forestry and range management overlap definitely with agriculture in determining proper land use, and the importance of correct decisions and proper regulations in bringing about results cannot be overestimated.

Grazing

Under the Taylor Grazing Act, which provides for the intelligent reorganization and management of open grazing lands, steps have been taken to block out areas to be thus administered. State land-planning advisory committees have taken part in the studies of this and related problems of land use. In Oregon such a special committee of the State planning board has undertaken study of, and made notable progress toward, the solution of long-standing and complex problems involved in the use and jurisdiction of public lands in the eastern part of the State.

Forestry

A large part of the productive area of the Columbia Basin States consists of forest land in an area which contains more than half the remaining timber supply of the United States and furnishes 36 percent of the Nation's lumber. No attempt to improve the social and economic status of the people of the United States can leave out of consideration this important industry which ranks fourth in importance in the Nation as for value of product and number of persons employed. The industry in this Pacific Northwest region supports more than one-fourth of the population.

Forest lands in the four Columbia Basin States cover 93,000,000 acres. Half of this area is in national forest; a third of it is privately owned; and the balance is in some other form of public ownership. Though the national forests contain a 50 percent greater area than private forests, they possess no more timber, and part of the merchantable timber which they do possess is in commercially inaccessible locations. Some sectors of the publicly owned forest areas are valuable chiefly for recreation or for flood and erosion control.

The Columbia Basin area (four States) has 917 billion board feet of merchantable timber as against a total of only 1,668 billion feet for the entire country. It has an amount equal to about 90 percent of the timber in the entire Dominion of Canada.

Under scientific protection and management this valuable timber resource is capable of supplying a permanent livelihood to nearly a million people. Under the planless system now being pursued it is destined to early extinction, with the same consequent disruptions of the social and economic structure, which has followed in the wake of timber operations all the way from the Atlantic to the Pacific coast.

At the recent rate of depletion it is estimated that commercially available stands of old growth high-quality timber in this area will be exhausted within a generation or even less.

The economic significance of this prospective timber depletion can scarcely be overemphasized. The taxable private investment in timber and operating improvements is somewhere near a billion dollars. This investment, in 1929, produced an income of $585,000,000, or 40 percent of the total income of the four States.

In Oregon and Washington forest industries employed 59 percent of all persons employed in manufacturing. The forests of the region directly and indirectly furnish a livelihood for 778,000 people. They supply 65 percent of the freight-car loadings in Oregon and Washington and 67 percent of the outbound intercoastal tonnage by water.

In spite of their vital importance, the forests here are largely managed in the same prodigal fashion which has produced disaster in other parts of the country. The lessons in water conservation, in flood and erosion control, have been painfully learned in the East. In the Columbia Basin there is immediate reason for concern.

Almost without exception the streams have their sources in forested mountain areas upon which the large irrigation projects must depend for their summer water supply.

The uses and the potential benefits of the Columbia Basin forests demand a higher degree of forest-fire protection than is now being secured. If sustained timber yield is to be maintained, annual area losses from forest fires should not exceed from one-tenth to three-tenths of 1 percent of forest areas. Actual losses, particularly on privately owned cut-over land, far exceed that limit. Adequate protection would require from 35 percent to 50 percent increase in expenditure on necessary facilities.

Although the forest-fire problem far outshadows the problem caused by insects and tree disease, yet in the ponderosa pine forests of eastern Oregon and Washington, the western pine beetle is destroying substantially more timber than fires. This insect during peak epidemic periods is taking a toll from the pine forests comparable to that taken by the sawmills. In the white-pine region of Idaho the menace of the white-pine blister rust calls for an intensive eradication campaign. In both these areas the continued support of timber-dependent communities is threatened by an attack which can only be met by scientific approach and thorough and expensive effort.

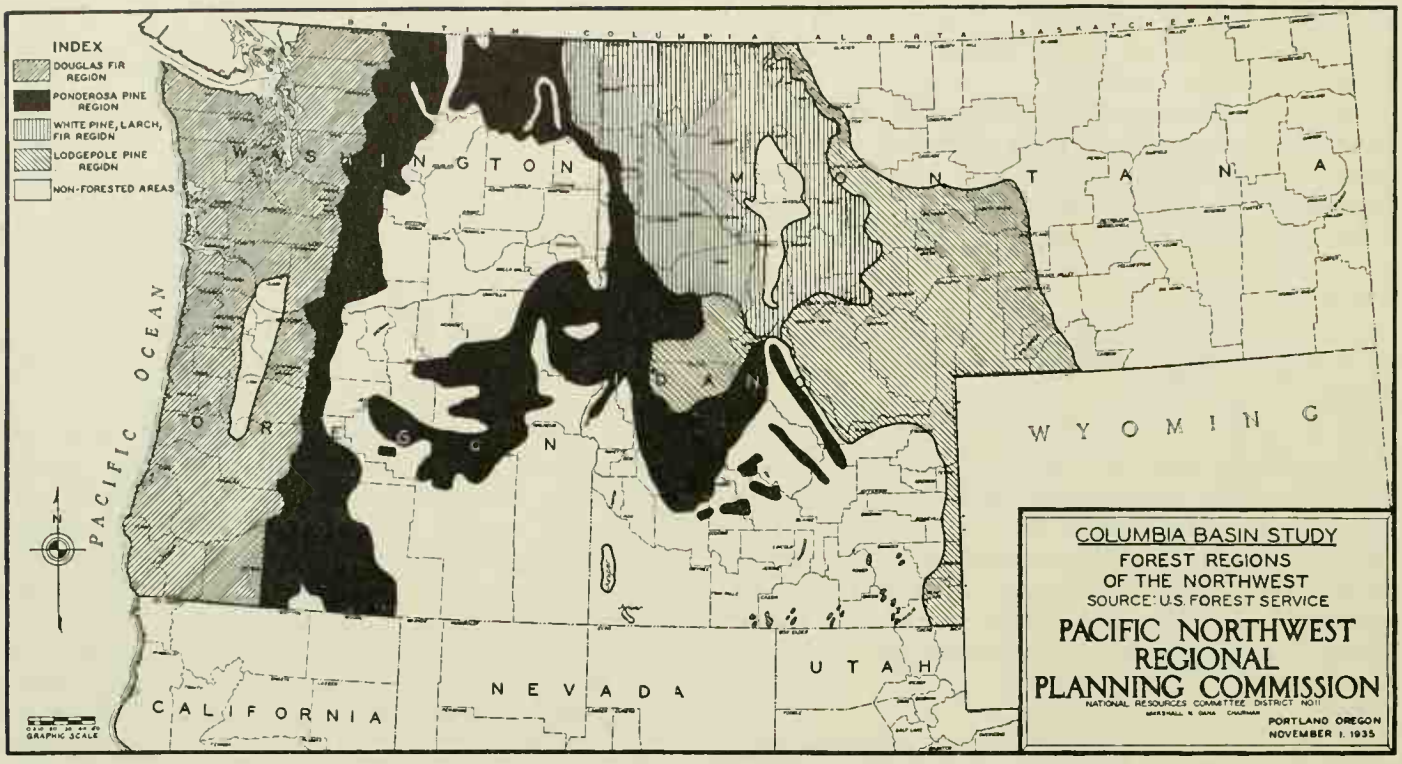


FIGURE 15.

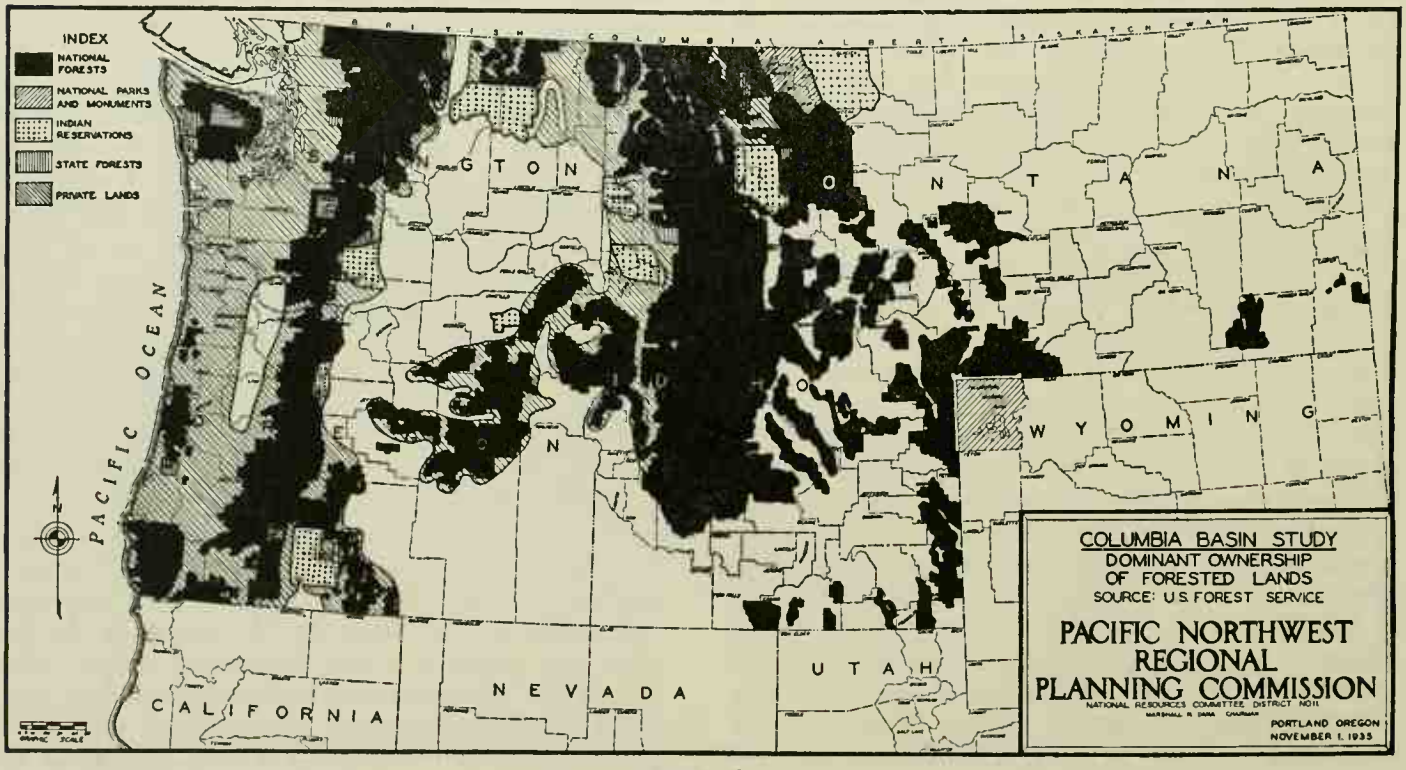


FIGURE 16.

The most serious problem involved in the perpetuation of the Columbia Basin forests is the existing forced liquidation of valuable stands on privately owned lands. While only one-third of the forest area is privately owned, this one-third contains 43 percent of the timber volume; and on account of the superior quality and accessibility of this timber, it holds decidedly the dominant position. Private capitalists made heavy investments in timber and operating improvements at a time when the importance of continuous operations was little understood. It was at this time that Theodore Roosevelt, then President, announced as a national policy, timber conservation. Possibly these eastern and midwest operators who had cut out their timber stands in these localities, believed their last chance had arrived to acquire new timber holdings before these conservation policies were put into effect. These investments, in many cases heavily mortgaged, were not premised upon long-term holding required for sustained-yield operation. They were made on a basis of quick conversion, in other words, the contrary of conservation. Sums required to meet interest on mortgage and bonded debt and taxes are now forcing liquidation and precluding sustained-yield operation. It is a vicious circle and the present procedure of liquidation accentuates its own abuses. High carrying charges and taxes force overproduction of lumber. A lower market further stimulates the desire for volume production in the grades and sizes most cheaply available. The margin of utilization becomes narrowed. Top and small logs, slightly defective logs, and marginal trees are left fallen in the woods, knocked down in the ruthless struggle to hang up volume production records, and of no future use. A Forest Service study of woods waste in the Northwest shows that in normal times there is wasted on the ground 20 percent of the volume taken by the mills.

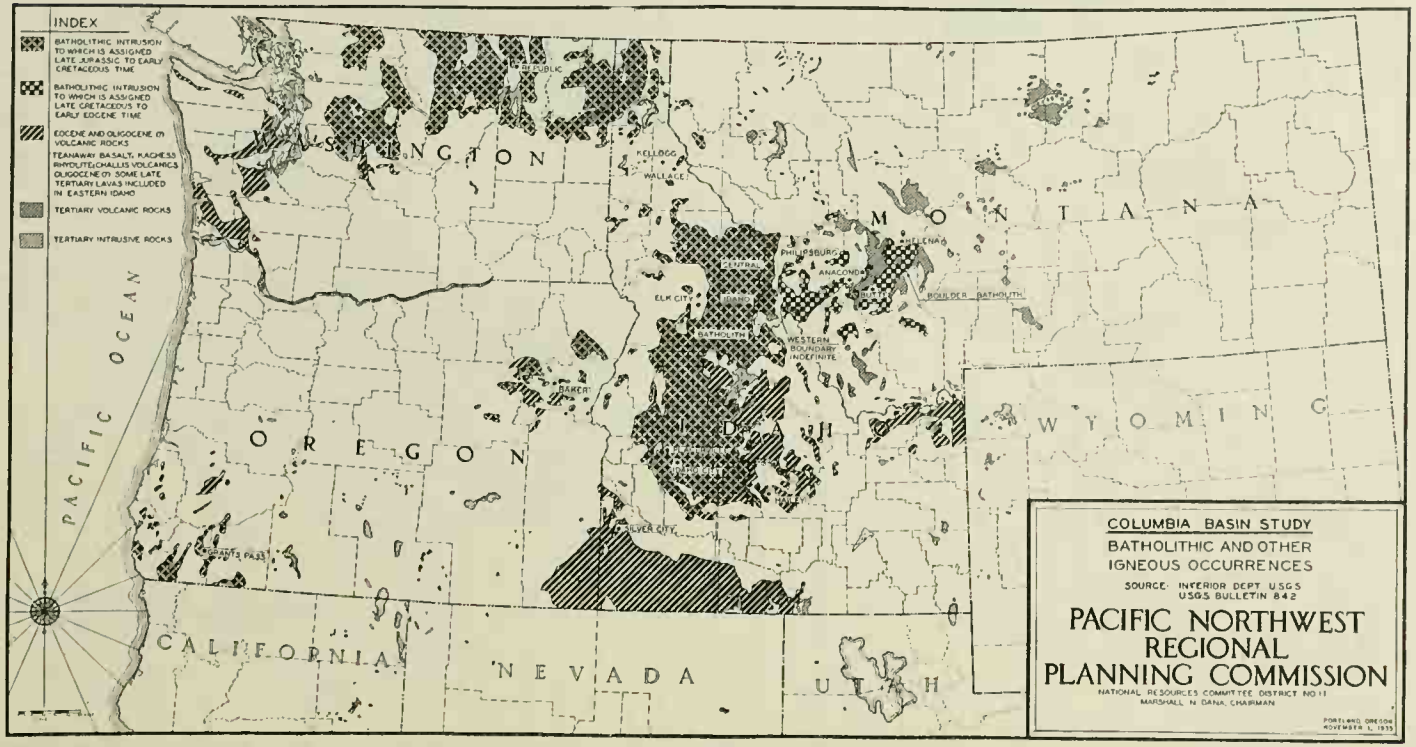
Another difficult phase of this same program lies in the tax situation. In the Douglas fir region annual taxes on standing timber average about 2 cents per thousand board-feet. The timber tax has been taken for granted as an invariable source of revenue. As the timber is depleted the tax on the remaining stand is increased to provide an undiminished total return. From an average of 70 cents per acre in the heavily timbered counties, the tax increased to as high as $3 or $4 per acre in depleted counties. Counties have clung to the policy of completely draining the resource, shutting their eyes to the inevitable collapse which must follow this goose-killing procedure.

Representatives of the lumber industry in both the Douglas fir and the pine regions of the Columbia Basin States have evinced their desire to formulate and observe rules of forest practice designed to keep their lands in a productive condition. However, under present economic conditions private owners cannot carry for the necessary period the large timber land investment required for sustained-yield operations. Adequate control of production and the operation on sustained-yield basis cannot be secured without powerful Government aid. Most timber-land owners are forced to liquidate by reason of economic conditions beyond their control. Tax reform and other measures designed to remove present obstacles to sustained-yield operation are bound to be slow. This complex situation can be remolded only through a substantial shifting of forest land from private to public ownership.

There is more to be considered in the proposal for enlarged public forests than the vital continuation of the timber industry itself. The United States Forest Service has demonstrated that forest lands have multiple uses which may be developed and coordinated under public ownership for the greatest possible public benefit. In addition to timber resources, some of the major forest values include those inherent in properly protected watersheds, in the grazing of livestock, in the development of fish, game, and wildlife, and in the wider field of recreation. Under careful management each of these forest uses may be developed on the same area without sacrificing the others.

Sustained-yield forest management is the logical approach to a solution of this forest problem which profoundly involves the social and economic welfare of the entire Columbia Basin region. It means stabilization in place of insecurity; permanent communities in place of migratory towns; permanent capital and tax structures in place of vanishing resources. It means that communities will stop "living off" forest capital and start "living off" forest income. The plan is based on the primary conception of an industrial community consisting of wood-conversion factories, homes, and the cultural and economic advantages of society, supported permanently by a continuous forest output.

From a practical standpoint, sustained yield requires stable land ownership, unified control, a fair method of assessing costs against the various properties involved, and an intelligent management which will take every advantage of commercial and scientific processes. Under present economic conditions, it is hardly practicable for an operating company to carry under private ownership the large quantity of timber required to place it on a sustained-yield basis. A conversion period of 20 years is generally considered a limit for carrying private timber; and even so, allowance is usually made for an appreciation in timber values during that period. A solution for this ownership problem is seen in the proposal that the public


INDEX
BATHOLITHIC INTRUSION TO WHICH IS ASSIGNED LATE JURASSIC TO EARLY CRETACEOUS TIME
BATHOLITHIC INTRUSION TO WHICH IS ASSIGNED LATE CRETACEOUS TO EARLY EOCENE TIME
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TERTIARY INTRUSIVE ROCKS
PACIFIC OCEAN
WASHINGTON
OREGON
CALIFORNIA
NEVADA
UTAH
WYOMING
MONTANA
REPUBLIC
KELLOGG
WALLACE
PHILIPSBURG
ANACONDA
HELENA
BUTTE
BOULDER BATHOLITH
CENTRAL IDAHO BATHOLITH
ELK CITY
WESTERN BOUNDARY INDEFINITE
BAKER
SILVER CITY
CRATER LAKE
COLUMBIA BASIN STUDY
BATHOLITHIC AND OTHER IGNEOUS OCCURRENCES
SOURCE: INTERIOR DEPT. U.S.G.S. USGS BULLETIN 842
PACIFIC NORTHWEST REGIONAL PLANNING COMMISSION
NATIONAL RESOURCES COMMITTEE DISTRICT NO 11
MARSHALL N. DANA, CHAIRMAN
PORTLAND, OREGON NOVEMBER 1, 1935

FIGURE 17.

carry part or in some cases all of the timber resources, leaving private capital to operate the logging and milling ends of the business with a timber investment in conformity with practical economic limitations.

The operation of private timber on a sustained-yield basis would require a change in financial set-up for the operators, based on long-term continuous operation of timber properties. It is proposed that Federal forest credits at low-interest rates and long maturities would be provided to aid private owners in placing their lands in such sustained-yield enterprises.

A larger public participation in the forest protection program is required in order to induce private owners to assume the risks of fire and insect losses which would be faced under permanent timber operations.

The present system of timber taxation will have to be supplanted by some equitable system which defers at least part of the tax until the timber is actually cut. In order to meet the financial problem which this change would mean to local tax-levying units, a plan has been suggested by which counties would be compensated for their present loss in property taxes by commensurate annual advances from some central fund. This tax fund in turn would be replenished from timber returns when the timber was cut.

The operation of publicly owned timber on a sustained-yield basis requires prompt and definite provision for a sustained-yield policy on Indian lands, on revested grant lands, and public-domain lands. The importance of the adoption of this policy for the Oregon and California revested grant land of Oregon is particularly emphasized. The national forest is already operated on a sustained-yield basis.

Opening the way for sustained-yield practice on public and private lands is only part of the program required to make this policy successful. On the positive side an aggressive program of research is needed looking to maximum utilization of forest products and maximum efficiency in forest management and in both woods and manufacturing operations. The object is to stabilize and develop forest resources for the greatest possible public benefit. Research and organization should be extended into the merchandising field studying and developing the specific needs of the market.

The four Columbia Basin States have it in their power to become the permanent wood lot of the Nation. The large stands of uncut timber on extensive areas make it possible to adopt a program of sustained-yield forest management without any general industrial curtailment such as occurred in the Lake States when their timber became exhausted.

An aggressive program of industrial development may make it possible to stabilize certain communities through expansion of the pulp and paper industry or through development of other industries which employ as much labor. Research has already shown that certain districts of western Washington and Oregon are among the fastest pulp timber growing areas in the United States. This region could, if necessary, supply all the Nation's needs. Without a positive forest policy along the lines indicated, it must soon face a period of painful readjustment which will involve directly and indirectly the happiness and prosperity of the region's entire population.

An adequate analysis of proposed methods of stabilizing the industry must be of a regional character rather than by separate States. Much opposition by short-sighted officials, looking for immediate tax returns, must be met and overcome. A program of study and education carried on by the Regional Planning Commission in cooperation with the Regional Forestry offices seems imperative.

Mineral Resources

Geology

The inner and outer forces of nature have endowed this region with great areas of mountains and valleys in which are hidden quantities of valuable minerals. These can best be measured, not by what is seen, but in terms of the geologic ore-forming processes which are clearly in evidence. The four principal ore-forming epochs have employed their forces in molding and remolding the earth crust of this region, and in so doing each has produced the conditions which give birth to quantities of valuable ores. Most of these ores lie hidden beneath the surface, but they may be found with the proper kind of exploration technique. There is plenty of visible evidence, however, in the 1,200 known occurrences of 100 different minerals. Gold leads with 350 occurrences, copper has approximately 70, silver 71, lead 69, and zinc has 26. In addition there are the remarkably rich districts which are now being mined.

Discovery and the resultant developments have up to the present time been confined to the genetic and host formations which happened to have been eroded into view. The newer techniques of exploration are based upon this general geological evidence. These will, no doubt, reveal many other very important mineral deposits which could not be found by the older methods of prospecting and exploration.

Upon the basis of the geologic structure of the region, it is relatively certain that present discovery has revealed only a few of the great deposits which still

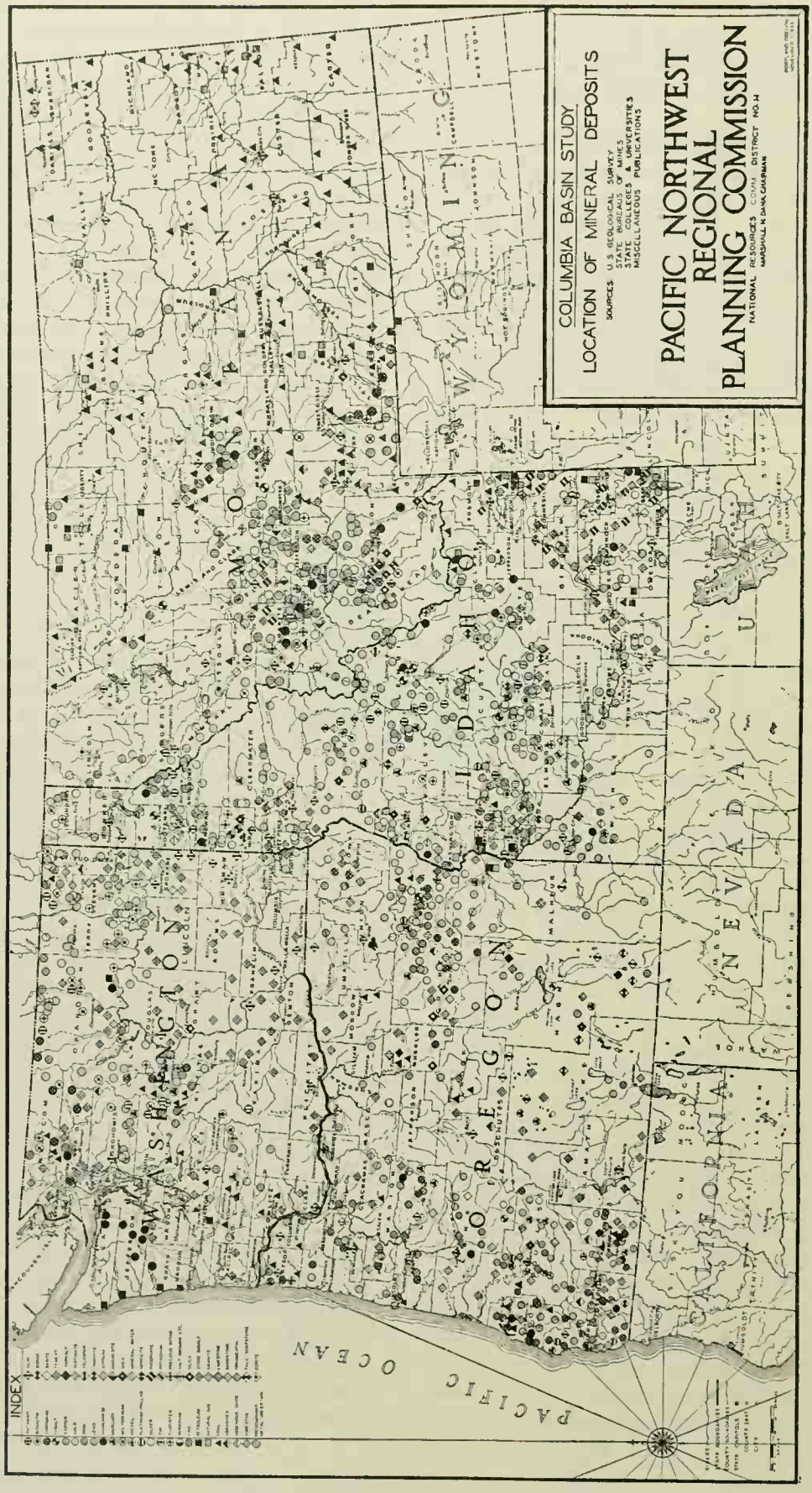
COLUMBIA BASIN STUDY
LOCATION OF MINERAL DEPOSITS
SOURCES U.S. GEOLOGICAL SURVEY
STATE BUREAUS OF MINES
STATE COLLEGES & UNIVERSITIES
MISCELLANEOUS PUBLICATIONS
PACIFIC NORTHWEST
REGIONAL
PLANNING COMMISSION
NATIONAL RESOURCES COMM. DISTRICT NO. 14
MARSHALL N. DANA, CHAIRMAN
INDEX
PACIFIC OCEAN
WASHINGTON
OREGON
IDAHO
NEVADA
MONTANA
WYOMING
UTAH

FIGURE 18.

lie beneath the surface. Butte and the Coeur d'Alene districts came to light quite by accident, but their richness might be taken as a measure of deposits yet unfound.

Production

The four States produce about one-fourth of the Nation's lead, one-third of its silver, one-sixth of its copper, and one-twentieth of its gold. In the nonmetallic production, however, the region lags far behind the development elsewhere in the Nation, where the former exceeds the metallics in total value. The retardation is due to a number of unfavorable factors such as distance to markets, high freight costs, and the lack of demand within the region. With some improvement in these factors there should be a considerable expansion in the production of coal, oil, gas, phosphate, and other nonmetallics. Special mention should be given to the important possibility of producing the light metals from the alumina clays and magnesite deposits which exist in the region. This production appears to be contingent upon the successful application of certain electro-metallurgical processes which will probably be economically practicable with low-cost electrical energy. Research in this field and also in the ferro alloys should go forward as a part of the general power program.

The advancing technology of mineral extraction and refining which now includes physical, chemical, and metallurgical processes, independently and in combination, will have a very important bearing upon the future production of all ores. The progressive discovery of new methods makes it possible to work lower and lower grade ores. The flotation process of extraction marked an important step in the recovery of metals, but as time goes on its causative reactions become more fully understood. The increasing knowledge of the old and new reagents is widening the scope of its application very rapidly.

The importance of the mining industry to certain sections of the region cannot be overemphasized. Districts like Butte and Coeur d'Alene are almost wholly dependent for their survival upon this activity. The larger cities like Spokane, Seattle, Tacoma, and Portland draw a substantial part of their income from the mines of the region.

Relation of Power to Mining

Power touches mining in two important ways. The first and obvious use is in the mechanical energy required in the movement of ores and other material. As the large producers continue, it has become necessary to sink deeper shafts, which in turn require more hoisting, more pumping, and the conditioning of air to make human effort at these depths possible. There is need for keeping these costs low as possible by the use of inexpensive power. With the present outlook in the industry, however, it would not be justifiable to expect any great increase in the total amount which will be consumed by the present industry.

The second and more important use of power is found in the extraction and refining processes themselves. There is good reason to think that the electric furnace can be used extensively in various smelting operations. Electrometallurgy is just in its infancy and the same is true for electrochemistry. If it becomes economically feasible to manufacture phosphate fertilizer by the electrical process, there will be market for millions of kilowatt-hours per annum.

The transportation improvements will be of great value to the mining industry, in which cost of transportation is of special importance. With the conjunction of low-cost power and decreased transportation costs, there can be no doubt that mining in the Northwest will be a leading influence in the future progress of the region.

Exploration, Prospecting, Mapping

It is the general view that most, if not all, of the outcropping mineral deposits of the country have been found. This is not true, however, with relation to the base metal deposits of the Pacific Northwest. Here there are immense areas unsurveyed upon which no white man has yet trod; some of these are literally standing on edge, others are covered with timber growth or otherwise present difficulties which have prevented the prospector from carrying out a thorough search. The great Butte discovery included an area less than 25 feet in length and a few feet in width, and the Coeur d'Alene was even less in proportion. Both represent needles found in a haystack.

The haphazard methods of the past have begun to yield diminishing returns. It has become necessary to bring into this work a more intelligent method of discovery and investigation. Fortunately, such methods are at hand.

Aerophotography, topographic and geologic mapping, drillings, geophysical surveys, and metallurgical analyses are the new techniques which will be employed in systematic progression. Thus far not over 10 percent of the mineral area of the Pacific Northwest has been studied in sufficient detail to provide base maps. Not more than 5 percent of the region has been covered in geologic maps of detail and accuracy, sufficient for the needs of exploration work.

The time has arrived when all exploration work must be organized into a comprehensive service which

will be available to the entire industry. No one company can undertake or effectively carry out the widespread program which is necessary.

Needs and Recommendations

Minerals are an exhaustible and nonreproducible resource. The need for conservation is, therefore, quite apparent. It is also obvious that with the playing out of high-grade ores there is need for the discovery of cheap methods of extraction and refining. This is an improvement which should be steadily advancing through research and experimentation. As a practical suggestion along this line, there might be a greater degree of Federal cooperation with the States in providing funds for the State bureaus of mines and geology. These institutions in conjunction with the United States Geological Survey and the United States Bureau of Mines are eminently qualified to carry on a large portion of the investigations required in all branches of mining.

The need for organizing a mineral discovery and exploration service has already been mentioned.

The report of the National Resources Board has stated [2] as obvious needs in connection with mineral resources (1) extension of areal surveys in mineral-bearing districts, (2) more thorough inventories of mineral reserves, (3) fundamental research in geology to improve methods of locating minerals, (4) improvements in technique of exploration, (5) improvements in technique of mining and metallurgy, and (6) studies of effects of improvements in transportation. To these needs may be added: (1) Transportation into promising producing districts, (2) provision for electric power in districts ready for production, (3) regulation of competitive production, (4) Federal aids in noncompetitive mineral fields, (5) Federal consideration of custom processing plants, (6) studies and forecasts of minerals consumption, (7) Federal studies and policies for stimulation, stabilization, and protection of mineral industries.

Industry

General

The effect of abundant low-cost electric energy will become evident in (1) the expansion of existing industries, (2) in bringing to the northwest branches of enterprises which have their parent establishment in other sections of the country, and (3) in the creation of new industries which may use local or imported raw material in new processes where cost of power is a considerable factor.

[2] Report of National Resources Board, pt. IV, sec. 11, December 1934, p. 433.

It remains true, of course, that availability of raw material and inexpensive power are not the only factors which control the growth of industry. In some commodities, as for example pears, there are lands suitable for the production of a quantity which would supply the entire world with the canned product. This avails nothing so long as consumers prefer other kinds of fruit. The same fickle tastes may put a veto upon certain processes of preserving with equal effectiveness. In other commodities, like lumber, wood pulp, light metals, alloys, etc., the consumers' tastes do not carry so much weight. Cost of product and the standard of quality more nearly determine the market.

Forests

At present the lumber and wood industries are by far the most important. This region supplies about 40 percent of the Nation's annual lumber cut. The industry employs 51 percent of the industrial wage earners within the region and accounts for 52 percent of the industrial pay roll. There is a growing diversification in the manufacture of the timber products in planing mills, veneer plants, furniture factories, and factories for the making of cooperage and wooden ware. These make possible a greater utilization of the standing timber and also of the log but even more refinement of manufacture is necessary if present wastes are to be avoided.

Pulp and paper is destined to be one of the most important forest industries. The capacity of wood-pulp production has increased almost 180 percent over the past 12 years and the raw material supply could support an increase to many times the present output. The region is now supplying 22 percent of the sulphite pulp which is produced in the United States, and a considerable quantity of other varieties of pulps, including bleached and unbleached sulphite, sulphate, soda, and mechanical. Most of this is manufactured into paper and paper products and board in local mills, excepting the greater part of sulphite which goes to converting mills in the East. Under proper forestry methods this region could permanently supply all the sulphite pulp which is now being used in this country and about half of the sulphate pulp. There is much need for further research into the uses of cellulose and lignin. It may be expected that an entire new series of products might be found to augment those already known which include paper, rayon, cellophane, lacquers, plastics, building boards, and such material.

Agriculture

Agriculture supplies raw material for several important processing industries. The milling of wheat

flour has maintained its leading position over a long period and in spite of the current depression. At present, these mills supply about 10 percent of the Nation's flour. The northwest canning industry supplies 48 percent of the apples, 69 percent of the berries, 46 percent of the pears, and 87 percent of the prunes. Six new plants for the canning of peas have been built since 1932, and this branch could be expanded to meet almost any market. The cold-pack process of preserving is opening still other outlets for fruits and vegetables. While there is a sizeable meat-packing industry in existence, it does not begin to care for all of the livestock produced and, in the case of pork, it does not supply all of the local demand. The woolen industry also lags far behind the supply of raw material produced. There are a few mills which weave fabrics of various kinds, and a small part of this is made up into clothing. In the Willamette Valley there is a growing flax industry which is now producing twines.

There is need for a closer study of international markets to determine the advisability of further expansion in the various agricultural processing industries. Much more could be learned about the cold and hot processes of packing for fruits and vegetables. It is fairly obvious that meat packing should be expanded to meet local demands, at least. Much more can be done in developing flax into an important industry which will benefit a considerable group of people. The value added by manufacture in the case of flax bears a ratio of $36 to $1,000.

Fisheries

Fisheries are an old, established industry in this region. It supplies the greatest quantity of fresh and frozen halibut and of canned salmon. The catch of halibut is coming more and more to coincide with natural production, but the salmon catch is diminishing. In order to maintain salmon it will be necessary to secure State, interstate, and international cooperation. Certain species are being caught in quantities which are far beyond the rate of natural reproduction. Unless a balance is established through some well-devised policy of conservation the industry will be destroyed. The experience of such conservation in the halibut industry gives reason to expect that, by somewhat similar measures, the output of salmon could not only be preserved but increased. The Pacific oyster industry grew from nothing in 1930 to 68,000 cases in 1934. The manufacture of fish oils and fish meals is also expanding and will continue to do so with proper sales methods. Care should be exercised in the utilization of all the byproducts, and there should be continued research to improve methods of preserving.

Minerals

The region accounts for the following approximate percentages of the Nation's output of metals: 7 percent of gold, 15 percent of copper, 27 percent of lead, 35 percent of silver, 20 percent of mercury, and 7 percent of zinc. The technical methods of extraction which are in use conform to the most modern practice and have been made possible by the abundant supply of low-cost electrical energy which has been available. With increasing demands for the lighter structural metals such as aluminum and magnesium, the clays and magnesite deposits loom into importance as a basis for a new field of industry. In the conversion processes of these light metals, power is a very important factor. There are also possibilities of developing ores from which are derived metals used in the ferro-alloys. The research in methods of extraction of all the various metals should be continued and expanded. This effort has a special application to the manufacture of commercial fertilizer which will have an increasing importance in agriculture. At present there is very little produced, but the region does possess an immense deposit of phosphate rock which, with low-cost electric energy, could supply all the needs of the four States indefinitely. The region's requirements in the building materials such as cement, brick, tile, etc., are largely supplied locally. Montana has a number of important oil refineries.

Manufacturing

In "value added by manufacture" the region's total is 2.13 percent of the national total. With a population which is 2.8 percent of the total, the proportion is somewhere near the normal. However, in certain respects the industry of the region is out of balance. This is especially true of forest products, which rate at 24 percent in the Pacific Northwest and 4 percent for the Nation as a whole. In other classifications the region is seriously deficient, especially so in the finishing industries for textiles, minerals, and luxuries. This condition is gradually being corrected through increase in population creating more local demands.

Per-capita "value of manufactured products" for the United States, the Pacific Northwest, and each of the four States is given in table III.

TABLE III.—*Showing (1) value of manufactured products in $1,000's, (2) populations in 1,000's, (3) per-capita value of manufactured products*

	United States	Pacific Northwest	Idaho	Montana	Oregon	Washington
1	$70,434,863	$1,575,267	$96,349	$271,094	$411,766	$796,058
2	122,775	3,509	447	538	956	1,568
3	$574	$450	$215	$504	$430	$507

Commerce

In a country so diversified in its economic life as the United States, there are sharp differences in the pattern of economic activities in different parts of the country. A State like Rhode Island, for example, had in 1930, 51 percent of its gainfully employed persons engaged in manufacture, while North Dakota had only 9.2 percent. West Virginia had 19.3 percent of her gainful workers employed in mines, while Delaware had less than one-tenth of 1 percent. Fifty-five and nine-tenths percent of the workers in North Dakota were engaged in farming, while in Rhode Island only 3 percent were employed in agriculture. Commerce on the other hand, is a common tie, running through the whole fabric. It varies, to be sure, but within more narrow limits than other types of activity. In 1930 New York showed the highest percent of gainful workers in trade (15.6), while Mississippi showed the smallest (5.5).

Persons engaged in retail trade probably constitute about the same proportion of the population in all parts of the country. Variations in the total engaged in trade as between States are very largely explicable in terms of differences in the extent of wholesale trade, and foreign and domestic commerce. This seems to be the explanation of the differences which are found to exist between the four Pacific Northwest States. In 1930 the percentages of the gainfully employed populations engaged in trade in these States were: Idaho, 10.3; Montana, 9.6; Oregon, 13.6; and Washington, 14.1.

Wholesale trade is largely a function of population and of location on trade routes. There are cases in which a State depends for wholesale services upon centers outside its own borders. This is especially true for Idaho and slightly less so for Montana. Retail trade, except for the mail-order business, tends to be indigenous.

The role of the seaport cities in foreign and domestic commerce deserves some special attention. These cities depend for the outbound movement of commerce upon the production of the hinterlands which gets an easy exit by this route to the lanes of ocean transport. For the inbound movement they depend again upon their tidewater location and upon their connections with inland consuming populations or with local industries which use imported raw materials.

In this region the foreign and domestic exports exceed the imports. Commerce here is largely concerned with the movement out of the area of the products of agriculture and industry—wheat, fruits, and lumber. The population most easily reached by the North Pacific ports is too small to support a large import movement, and there are relatively few industries requiring large quantities of raw materials from outside the region.

The contrast between inbound and outbound movement is more striking in foreign than in domestic commerce; in part because petroleum products constitute about three-fifths of all domestic imports. In tonnage terms, the movement of goods to other countries is many times the amount brought in. The result is a bad load factor for foreign shipments, which is reflected in higher rates for outbound freight. Relief from this condition through population growth will be very slow and uncertain. There is greater prospect that study would reveal the possibilities of new industries in the region making use of raw materials brought from abroad. Consideration should be given to this problem not only in planning, but in the determination of rate policies for electric energy. New industries brought to the region by attractive power rates and other factors may accentuate this unbalanced situation in the field of foreign commerce, but they may lead to a better adjustment, and fuller utilization of the transport and trade facilities which now exist.

Transportation

Transportation has been, is, and probably always will be a dominating factor in the economic and social life of the Pacific Northwest. The region may not be unique in that respect but the fact comes to the surface in any study of its resources and economics.

It is a region of (*a*) few centers of population, (*b*) high production, (*c*) low consumption, and (*d*) long distance between points of production and points of consumption. Long distance to heavy consuming markets and consequent high cost of transportation have been factors limiting the development of the Pacific Northwest and restricting the volume of its products.

The principal commodities produced and those for which the region is peculiarly adapted, are, in most cases, products over which the producer has no control in setting prices. He must accept prices that are offered in markets outside the region and pay the transportation cost to delivery point.

It is no wonder, therefore, that the popular demand is and will continue to be for lower transport cost. This may be secured by:

(*a*) Shortening distances between producer and consumer through the creating of less circuitous land routes and routing;
(*b*) Lowering the level of present land transport rates; and
(*c*) Making possible the full use of inland waterways for navigation.

The relation between cost of production and cost of transportation as affecting cost to ultimate consumer is intimate and obvious. It is apparent that transportation cost is now too high a factor with respect to the products of this region. The problem of reaching an equable balance is one of growing importance.

Continuous study is required by some agency which is in position to see objectively the whole region in its relation to domestic and world trade. Such an agency should collect information concerning all new developments and trends in transport. It should be charged with responsibility for cooperating, coordinating, and advising in all the various matters of transport.

Satisfactory transportation at lowest cost to carrier and shipper, with due regard for profit to the former and justice to the latter, is the goal toward which all study should be directed.

A few items suggested for additional study are: (*a*) "Cargo" or "mass" movement of commodities adaptable to it; (*b*) the extended use of portable containers interchangeable between all methods of transport; (*c*) coordination of all methods of transport as to terminals, routing, scheduling, and rate-making; (*d*) concentration of rate-making and tariff publishing; (*e*) elimination of useless parallel routes and circuitous routing; and (*f*) the elimination of any practices that obstruct the way to lowered cost.

Inasmuch as there is so much potential hydroelectric power in the region, it seems probable that, eventually, railroads throughout the region will be electrically operated. Reserves of fuel oil, which the coast railroads generally use, are not inexhaustible. A detailed study of this subject could well be instituted now, not only from the standpoint of developing a customer for electric energy but to find out if the use of electric motive power would not reduce operating expenses so that in turn rates might be reduced.

All principal trunk highways should be studied with a view to gradually converting them into more modern "limited motorways" for the sake of the many extremely important benefits that would accrue therefrom.

In the waterway section the need for improvement of inland waterways for navigation is stressed, but always with the expressed or implied provisions that the improvement must be followed by actual use of the improved channel, and at lower aggregate cost to shipper and carrier than can be attained by parallel land transport.

There are sections in the appendixes [2a] that briefly discuss the subject of transmitting electric power by a common-carrier grid system, and suggesting careful study of its possibilities.

In the future there will be much more work for transport agencies to perform in the Pacific Northwest region than there is today.

The indirect reasons are: (*a*) An abundant supply of hydroelectric energy, only a part of which is now in course of development; (*b*) natural resource reserves of essential character, capable of sustaining production on a grand scale; (*c*) mild, moist climate, west of the Cascade Mountains, for all-year work and play, and particularly adapted to manufacturing, including textiles; (*d*) water available for irrigable areas of great extent and proven fertility, to produce maximum crops; (*e*) recreational areas and opportunities, of diverse, wholesome, and appealing character, interspersed throughout the entire region; (*f*) further improvement of waterways.

The direct reasons are: (*a*) Increased production of manufactured and processed goods; (*b*) development of additional natural resources, as research and exploitation prove them economically available; (*c*) increase of population due to development activities now under way and planned; (*d*) increase of agricultural production as additional irrigable areas are put under water; (*e*) increased tourist travel attracted by recreational advantages of outstanding appeal; (*f*) increased trade with oriental and other foreign countries, as international conditions become stabilized.

Recommendations

There are recommended for further study or action, as economically justified:

(1) Electrification of railroads in the region.
(2) Elimination of grade crossings to fullest possible extent.
(3) Cross-State rail line in central Oregon.
(4) Rail line connecting Yakima Valley with lower Columbia River.
(5) Highway connecting Missoula, Mont., with Lewiston, Idaho (Lewis and Clark Highway).
(6) Highway connecting central Idaho with northern Nevada and California (Idaho-Oregon-Nevada Highway).
(7) Roadways to Salmon River, Idaho, area.
(8) Highway connecting Enterprise, Oreg., with Asotin, Wash.
(9) Highway connecting Yakima Valley with Cowlitz Valley.
(10) Conversion of principal trunk highways into modernized "limited motorways."
(11) Further improvement of Columbia, Snake, and Willamette Rivers for navigation.
(12) Intracoastal canal connecting Puget Sound with Columbia River.
(13) The establishing of a common-carrier grid system of electric transmission.

[2a] Appendixes on file and available in offices of the Pacific Northwest Planning Commission and National Resources Committee.

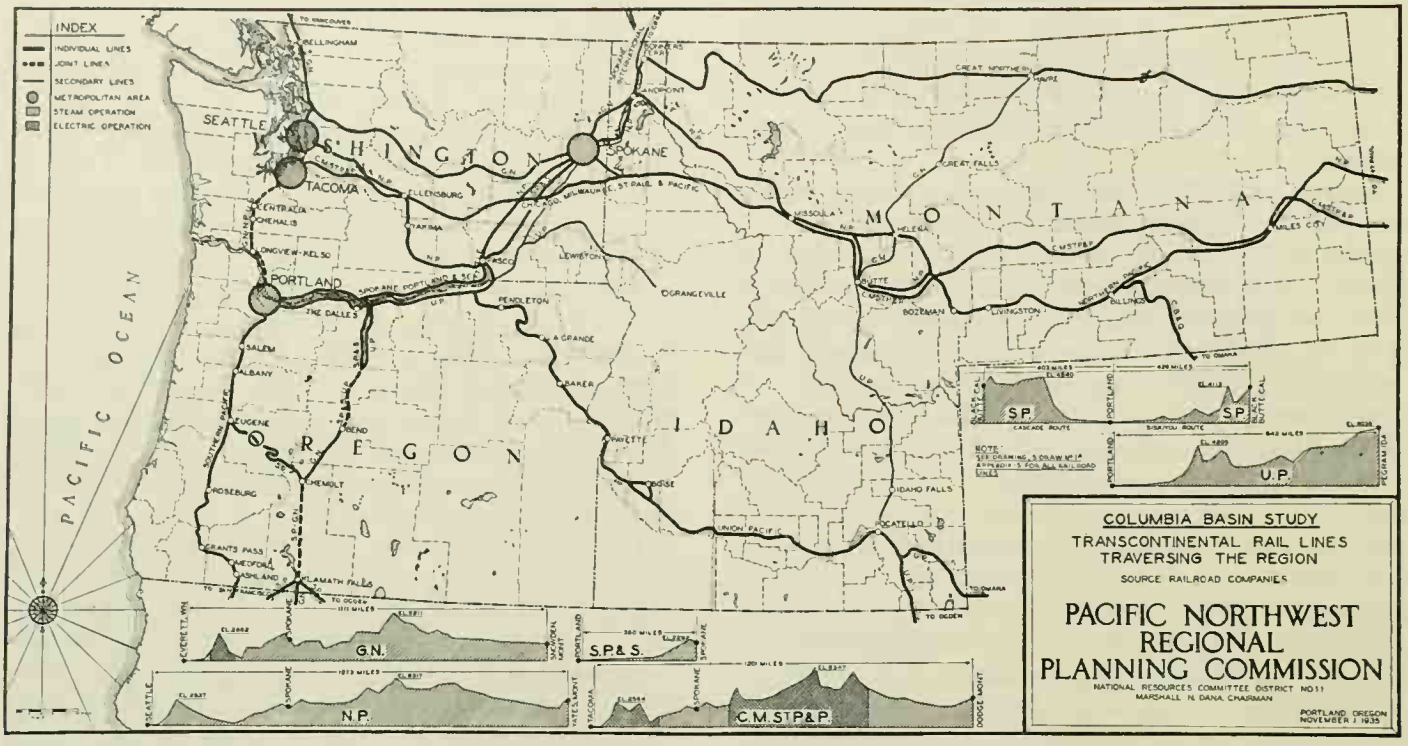

FIGURE 19.

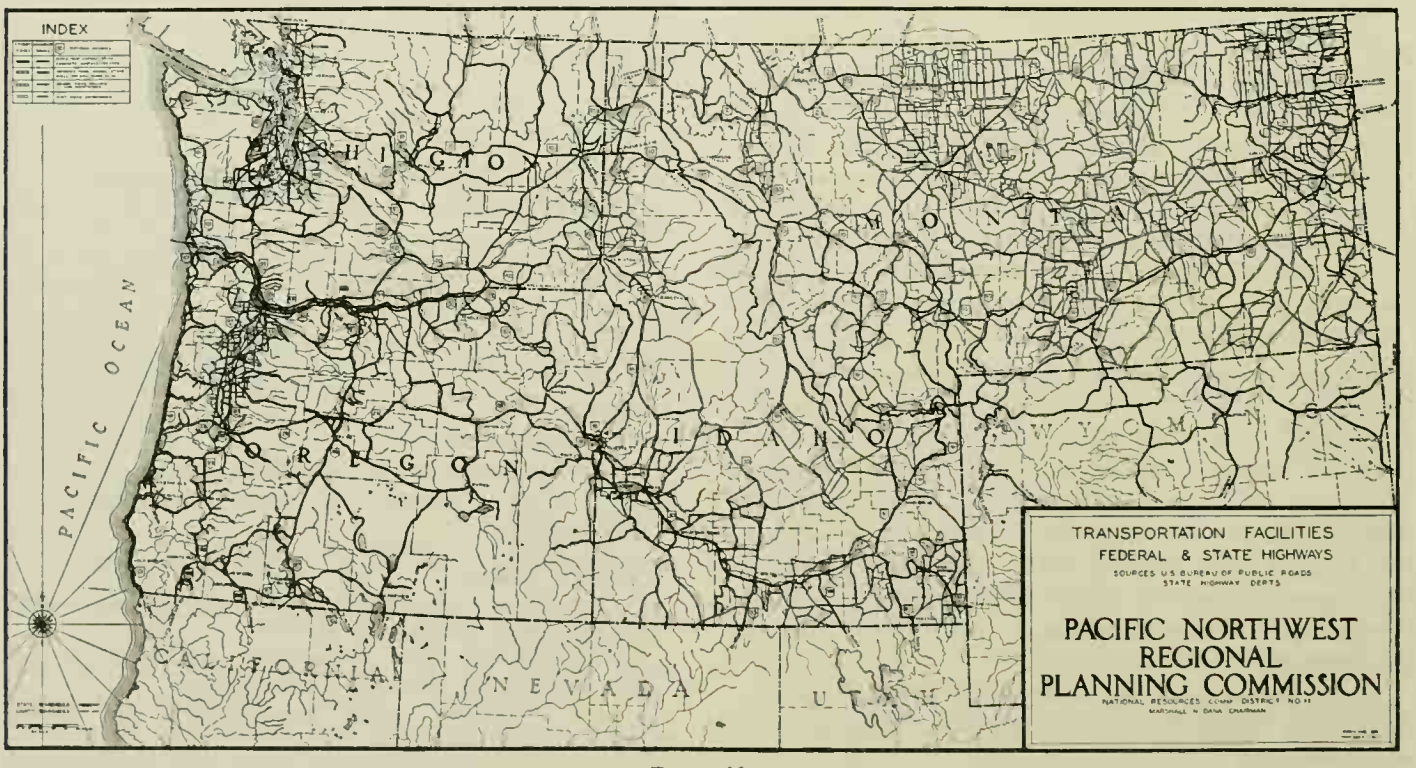
INDEX
PACIFIC OCEAN
W A S H I N G T O N
O R E G O N
I D A H O
M O N T A N A
C A L I F O R N I A
N E V A D A
U T A H
TRANSPORTATION FACILITIES
FEDERAL & STATE HIGHWAYS
SOURCES U.S. BUREAU OF PUBLIC ROADS
STATE HIGHWAY DEPTS.
PACIFIC NORTHWEST
REGIONAL
PLANNING COMMISSION
NATIONAL RESOURCES COMM. DISTRICT NO 11
MARSHALL N. DANA, CHAIRMAN

FIGURE 20.

(14) Study of the general services to which each method of transport is best adapted and their economic relation to each other.

(15) Continuous study of the whole transportation subject from a national as well as regional viewpoint.

Recreational Resources

The outdoor recreational resources bear several important relationships to the future development of the Pacific Northwest. They have distinct values accessory to those other resources of land and water—agricultural, forest, mineral and power—from which so much is expected in the way of economic progress. Because of their outstanding character and diversity in location and kind they will contribute materially to the fullness of life and add to the population drawing power of other factors. They will contribute materially to a growing tourist influx and so to industry and trade, and to the population supporting power of the region.

The second major relationship is the converse—the effect of river and other regional developments and their public works upon the recreational resources. Past tendencies have been to neglect the cultural and aesthetic in the pioneer development stages of regional economy. Consequently, in the rush of purely physical construction and under the pressures of industrial and urban expansion, other valuable assets have been destroyed needlessly and priceless opportunities lost. It does not appear to be necessary to duplicate the error of the past in this respect and yet that is still the dominating tendency. There are certain exceptions, but in general responsibilities for conservation are limited in contrast to definite responsibilities for construction.

In the construction of large public works the agencies in charge are giving an increasing amount of attention to conservation within the limits of authority and responsibility. The Corps of Engineers and the Bureau of Reclamation in dam construction have recognized the problem of fish conservation and the need of landscape rehabilitation in the immediate vicinity of the works. They have no mandate, however, to solve the more indirect problems of conservation and land planning occasioned by these projects such as boom town growth and ramshackle roadside developments in the vicinities. The Bureau of Public Roads is giving increasing attention to the problem of roadside control through requirements for wider rights-of-way and for landscaping, but this affects only a minor fraction of all roads.

The problems to be brought on by industrial and urban developments, and by the development of large irrigated areas, will be still greater. For orderly growth, with a minimum of confusion and waste, highways, towns, parks, and reserves must be planned and controlled by means of public land ownership, land classification, and zoning. The same forms of control should apply to these as to dams, irrigation canals, and forestry improvements. In other words, the planning of large public works, such as those involved in the comprehensive plan for the Columbia River, should definitely make provision for broad land planning and for secondary water uses, having recreation definitely in mind.

The Columbia Gorge, a scenic feature of national as well as regional importance, is the outstanding low-gradient route for water, railway, highway, and air communications between the coast and the hinterland. It is particularly important to harmonize the sometimes conflicting requirements in this area. This may be done through the mapping and classification of lands, rural zoning, the increasing and consolidation of public ownerships so as to permit conservation of forests and waterfalls, the improvement of roadsides, of recreational usage of river and shore, and the development of a comprehensive interstate park system. Since the superior usage of most of the land in the gorge is obviously recreational it is probable that such a development would be more than economical. The Regional Planning Commission, in view of the interstate character and the urgency of consideration of this area, has been making maps and studies of the gorge area as rapidly as funds and work relief projects for the purpose would permit.

Summarized, the needs in this field are national, State, and local recognition of the essential quality of coordinate planning for the conservation of the recreational resources of scenery, forest, stream, parks, and travelways, in connection with the general physical development of the region.

Public Works

This entire report is concerned very largely with public works—to determine a means for conserving, developing, and utilizing the resources of the region, to assay their place in the regional economy, to determine their effects upon its future, and to suggest the organization for their planning, construction, and operation. (See sec. IV.)

In the program for public works there has been a recent tendency toward greater cooperation of Federal, State, and lesser political units of government. Although necessitated largely by the exigencies of the depression this cooperation has revealed certain advantages which will probably be broadened. Inter-governmental cooperation will be continued despite ultimate abandonment of those agencies created only for

service during the depression. All of the special depression activities have been so out of the ordinary, and the Federal expenditures which have been made are so abnormally high, that they are entirely unsafe as bases for estimating probable future expenditures. In what follows, the abnormalities of the depression period generally have been ignored.

In this region, the past principal Federal public works have been those needed to develop a pioneer area—highways, river and harbor improvements, irrigation, and, to some extent, flood control and hydroelectric development. The States have made heavy expenditures for highways but only relatively light expenditures for the housing of State institutions. A larger portion of the total public works expenditures in this region, therefore, has been for transportation improvements, and for natural resources developments, than obtains in the older settled sections of the country.

Past and Present Conditions and Trends

For the total construction expenditures of the entire country, fairly complete data are available for the years 1920 to 1932, and the average for that period may be deemed reasonably normal. The average annual construction expenditure for the period was $6,791,000,000 or about $58.65 per capita and, of this, 62.6 percent was for private work, 33.2 percent for non-Federal public work, and 4.2 percent for Federal public work. Oregon's expenditures for the same period was $75.50, of which 65.4 percent was for private work and 34.6 percent for public work.[3] Complete data are not available for the other States but Oregon's figures are probably fair averages for the region. Detailed data of non-Federal public-works expenditures of the four Pacific Northwest States are available for the years 1931 and 1932. These indicate an annual expenditure of $22.30 per capita with the following segregation: State, 50.9 percent; counties, 10.3 percent; cities, towns, and villages, 29.1 percent; other civil divisions, 9.7 percent. The years 1931 and 1932 are not typical, being subnormal as to non-Federal expenditures, but the percentage segregation is, of course, more nearly typical of normal conditions.

A significant fact is that of total construction in the United States, two-thirds is private work and only one-third public work, of which only one-eighth is Federal public work. For the Pacific Northwest, the latter figure is about one-fifth but its other ratios are practically the same as above. These ratios, together with the ratio of present annual public works expenditures and loans of the Federal Government to the total construction expenditures of the late 1920's (very roughly 2 billion to 10 billion), indicate the importance of private construction. They also indicate the insufficiency of Federal public works appropriations of the present order of magnitude to replace the shrinkage in private construction during a depression such as the present one, and point to the need of stimulants for private construction.

For the period, 1920 to 1932, the Federal public works expenditures amounted to an average of about $280,000,000 per year or $2.42 per capita. The types of works are listed in the order of cost magnitude: Public roads, 32.9 percent; rivers and harbors, 20.2 percent; navy yards and docks, 7.2 percent; flood control, 5.6 percent; public buildings, 4.8 percent; forest service, 4.0 percent; reclamation, 3.7 percent; miscellaneous lesser items, 21.6 percent. For the Pacific Northwest the per capita expenditure was $5.42 as against $2.42 for the country as a whole, the major increases being for public roads and for reclamation.

For the 2-year period from July 1933 to the middle of 1935, the total allotments from Public Works Administration funds, for Federal public works in the region amounted to about $150,000,000; the total for non-Federal public works loans and grants was about $25,000,000. The total represented by these figures is not excessively high, but owing to the prostrate condition of industry, the Federal Government was forced to assume more than its normal share. There was also a need to fill the gaps of the public works which had been suspended by the agencies of local government.

Relatively high Federal expenditures for public works in the Pacific Northwest may be justified by several conditions, such as: The Federal ownership of a large part of the land; the less advanced stage of development in the region; the high contribution to national wealth; the increase of national wealth through the conservational works; providing for a larger future population; and mitigating unemployment.

Future Public Works

There are many logical avenues for enlarged public works activities in the region as, for example, the expansions of present operations in the fields of irrigation, forestry, flood control, navigation improvement, hydroelectric power, etc., and by the assumption of new activities as in the fields of agricultural resettlement, rural electrification, low-cost housing, etc. The extent of these possible expansions cannot safely be projected far into the future but to the extent that they are already reflected in past trends and past expenditures, they will have cognizance in our estimates.

[3] Study of construction in Oregon, V. B. Stanbery, consultant, Oregon State Planning Board.

In considering the future it should be recognized that the Federal grants for public works of certain characters—such as the river improvements for navigation, power and reclamation, water conservation; and State, forest and park highways—give great impetus to the development of the region and tend to generate other projects, both public and private.

Based upon a study of the reasonably normal expenditures of the past, with such departures therefrom as may seem warranted, a judgment may be expressed as to probable future public works expenditures in the Pacific Northwest. These expenditures for the period, 1920 to 1932, averaged $25.20 per capita per year, of which $5.42 was for Federal and $19.78 for non-Federal public works. Two decades after normal economic conditions are restored, it is believed that a fair estimate would be about 10 percent over the above figures. The population of the Pacific Northwest should approximate 4,000,000 by 1940. Assuming normal conditions restored by that time, the annual public works expenditures, on the above basis, should then approximate $110,000,000 of which about $23,000,000 would be the Federal portion. The latter figure may be exceeded because of certain large P. W. A. projects now under way (Bonneville, Grand Coulee, and Fort Peck). Just beyond 1940, the public works expenditures, per year, in this region, will be of the order of $125,000,000, of which about one-fifth will be the Federal portion.

Based upon Oregon experience, and heavy dependence upon the construction industry for employment, a total annual construction expenditure of in the neighborhood of $200,000,000 to $250,000,000 for the region will be required to maintain a reasonably high rate of employment.

Future expenditures may also be considered in relation to the region's natural resources awaiting development. These resources are not yet fully known except those concerned with forestry, fisheries and mining, power, irrigation, drainage, flood control, and navigation. There are about 14,000,000 kilowatts of feasible hydroelectric power yet to be developed, 5,000,000 acres of land yet to be reclaimed by irrigation, 2,000 miles of inland waterways to be improved for navigation, and numerous flood-control and storage projects yet to be undertaken. When these developments will be consummated, and what may be their ultimate cost, is highly speculative. The water resources developments alone may aggregate $2,000,000,000.

Problems and Needs

Although the region is blessed with a wealth of natural resources, the key to the further development of these rests in the water resource which has been the chief interest of this report. All of these water developments require a capital investment which is quite beyond the financing powers of any agency outside the Federal Government. The projects have already been launched and must necessarily be carried to completion if the original investment is to be recovered.

In carrying out the program there should be greater attention given to advance planning. The projects should work into harmony with each other, and into the economy of the region. To accomplish such a close integration, there must be plans and machinery which will loosely connect every department of the Federal Government and provide for cooperation between the various levels of government, Federal, State, county, and city.

It is fairly obvious that there will have to be a number of readjustments of governmental organization in the direction of decentralization to meet regional needs. The precise nature of these changes will probably be suggested in the study of regionalism which is now being carried on by the National Resources Committee.

There is further need for definite agreement as to the share of public works expenditure which should be assumed by each agency of government, Federal, State, and local, for various kinds of projects. Along with this belongs a definite policy which will govern allocation of costs to the various services which will grow out of these public works, e. g., navigation, flood control, irrigation, and power.

In the planning of the construction program of these regenerative projects, there is need for thorough ground-work surveys, research, and economic studies. The experience of the past has been that appropriations for these highly important preliminary surveys are the hardest to secure. These surveys and studies should be clearly recognized as an integral part of the public works program and prerequisite to any construction program.

In conclusion it might be said that there needs to be a clearer recognition on the part of every citizen that the public works of any given region or locality constitute a national asset. There is always temptation to engage in a provincial type of thinking which in the long run inevitably brings self-defeat.

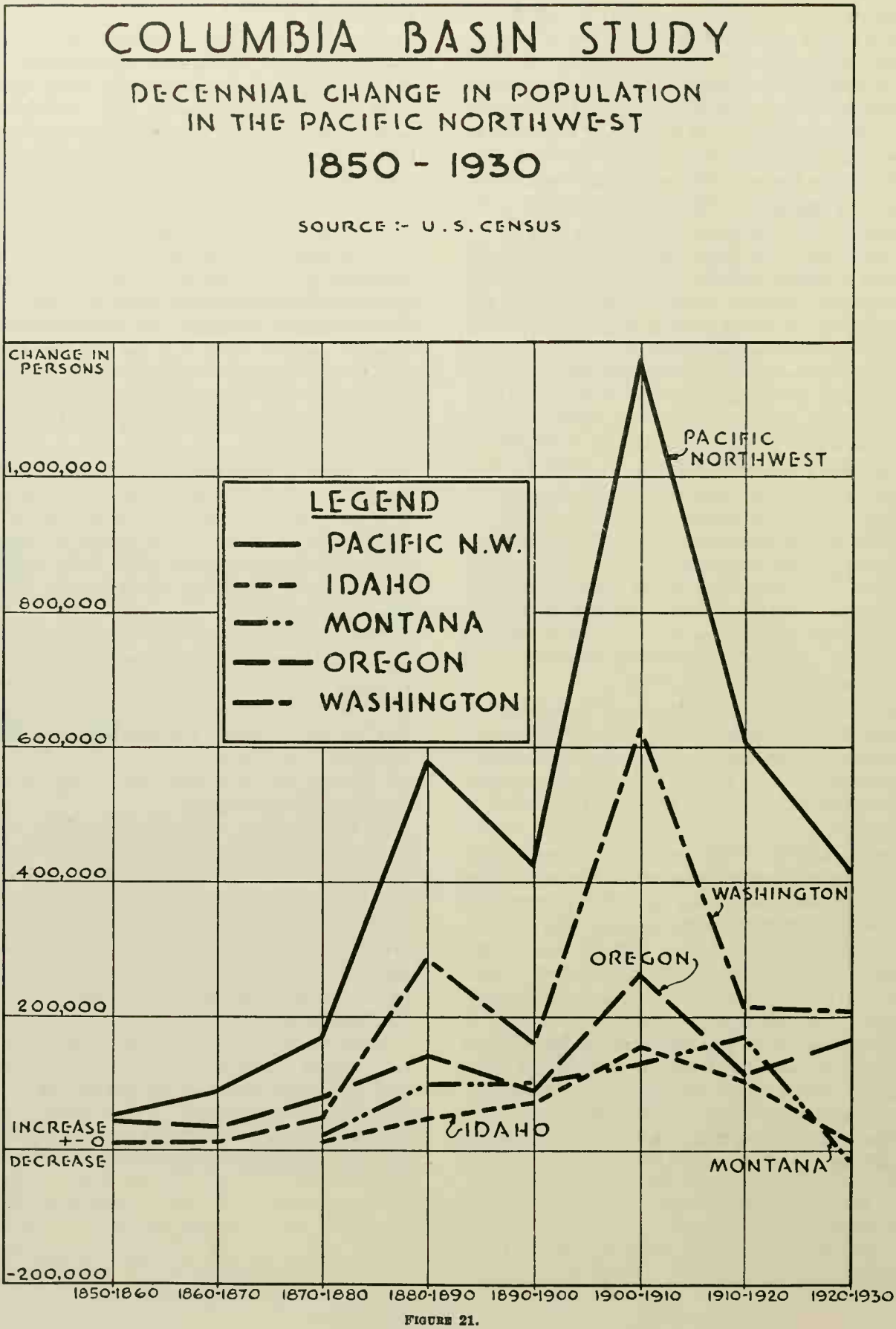
COLUMBIA BASIN STUDY
DECENNIAL CHANGE IN POPULATION
IN THE PACIFIC NORTHWEST
1850 - 1930
SOURCE :- U.S. CENSUS
CHANGE IN PERSONS
1,000,000
800,000
600,000
400,000
200,000
INCREASE
+- 0
DECREASE
-200,000
LEGEND
PACIFIC N.W.
IDAHO
MONTANA
OREGON
WASHINGTON
PACIFIC NORTHWEST
WASHINGTON
OREGON
IDAHO
MONTANA
1850-1860
1860-1870
1870-1880
1880-1890
1890-1900
1900-1910
1910-1920
1920-1930

FIGURE 21.

STAFF REPORT—SECTION II
3. POPULATION[1]

The growth of population in the Pacific Northwest has followed in general the same course as for the United States as a whole, but the complete experience has been telescoped into a much shorter period of time. Immigration resulted in very high percentage increases in the early period of settlement, and smaller percentage but larger absolute increases as the area became more fully developed. The resources which attracted population were minerals, land, and forests. As these resources became more fully exploited—and in some cases depleted—the rate of growth declined until the last census revealed a smaller percentage change in population than for the country as a whole.

Early migrants to the area were attracted by furs and mining, but within a short time the relative importance of these early magnets began to decline in the coast States. Agricultural development became the important incentive; although mining did continue to be an important factor in population growth in Idaho and Montana into the second decade of this century. The railroad developments of the eighties stimulated a rapid increase in population—a movement which died down somewhat in the next decade. This is shown on the accompanying chart (fig. 21). The period of greatest growth was between 1900 and 1910 when the population of the region increased by 88 percent. The declining lumber production in the Great Lakes area and rapid expansion of lumbering in the Pacific Northwest seems to have been the most important single factor in this remarkable increase of population. The subsequent slowing down of population growth has been due in some degree to depletion of timber and mineral resources, but more important has been the shrinking foreign and domestic markets for the products of the region.

The waves of migration by which the area was populated, the districts from which the migrants came, and the localities in which they settled undoubtedly have an important bearing on the present culture pattern of the region. In the time available for this study, however, it has not been possible to examine these problems in detail. The series of maps accompanying this study gives a general picture of migration to the Pacific Northwest (sec. II, drawings nos. 2 to 8, inclusive). The migrants came very largely from the Middle West, but there were important deviations from the main pattern, one of the most significant being the heavy migration from Utah into Idaho.

TABLE IV.—*Population of Pacific Northwest 1860–1930*

	1860	1870	1880	1890	1900	1910	1920	1930
IDAHO								
Population		14,999	32,610	88,548	161,772	325,594	431,866	445,032
Increase from preceding census			17,611	55,938	73,224	163,822	106,272	13,166
Percentage increase			117.4	171.5	82.7	101.3	32.6	3.0
MONTANA								
Population		20,595	39,159	142,924	243,329	376,053	548,889	537,606
Increase from previous census			18,564	103,765	100,405	132,724	172,836	—11,283
Percentage increase			90.1	265.0	70.3	54.5	46.0	—2.1
OREGON								
Population	52,465	90,923	174,768	317,704	413,536	672,765	783,389	953,786
Increase from preceding census		38,458	83,845	142,936	95,832	259,229	110,624	170,397
Percentage increase		73.3	92.2	818.	30.2	62.7	16.4	21.8
WASHINGTON								
Population	11,594	23,955	75,116	357,232	518,103	1,141,990	1,356,621	1,563,396
Increase from previous census		12,361	51,161	282,116	160,871	623,887	214,631	206,775
Percentage increase		106.6	213.6	375.6	45.0	120.4	18.8	15.2
PACIFIC NORTHWEST								
Population	64,059	150,472	321,653	906,080	1,336,740	2,516,402	3,120,765	3,499,820
Increase from previous census		86,413	171,181	584 745	430,332	1,179,662	604,363	379,055
Percentage increase		134.90	113.76	181.58	47.48	88.25	24.02	12.15

Source: U. S. Department of Commerce, Bureau of Census.

[1]Analysis by Blair Stewart, economist.

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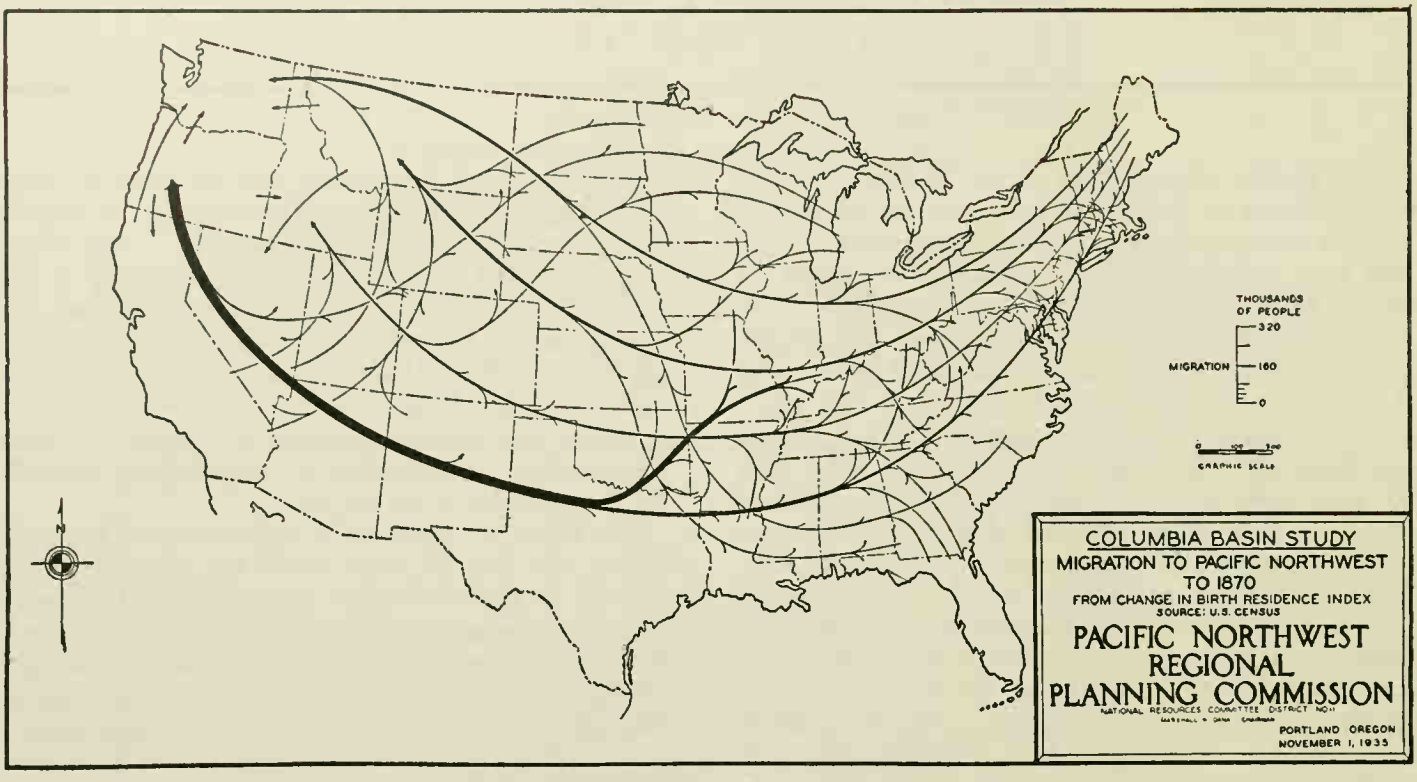
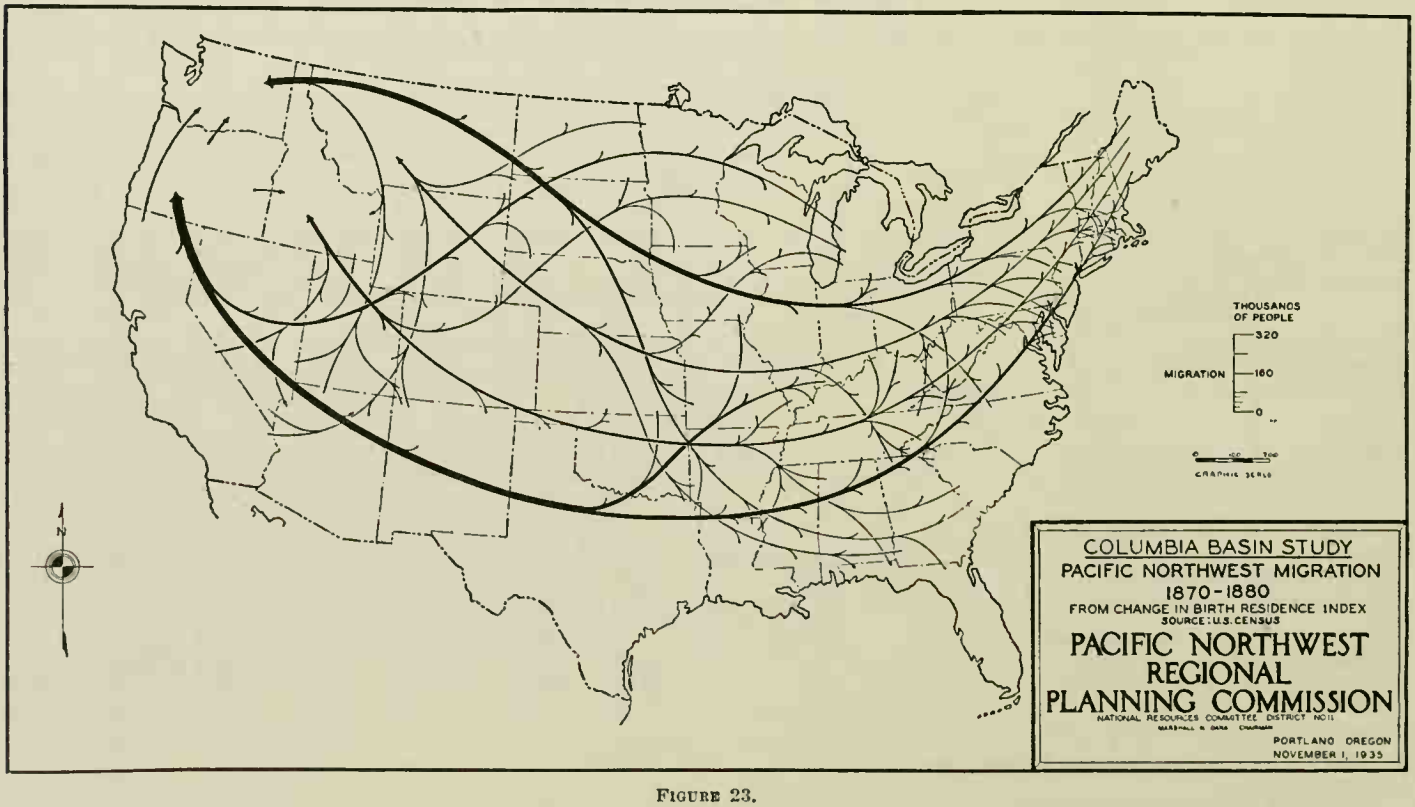


FIGURE 22.



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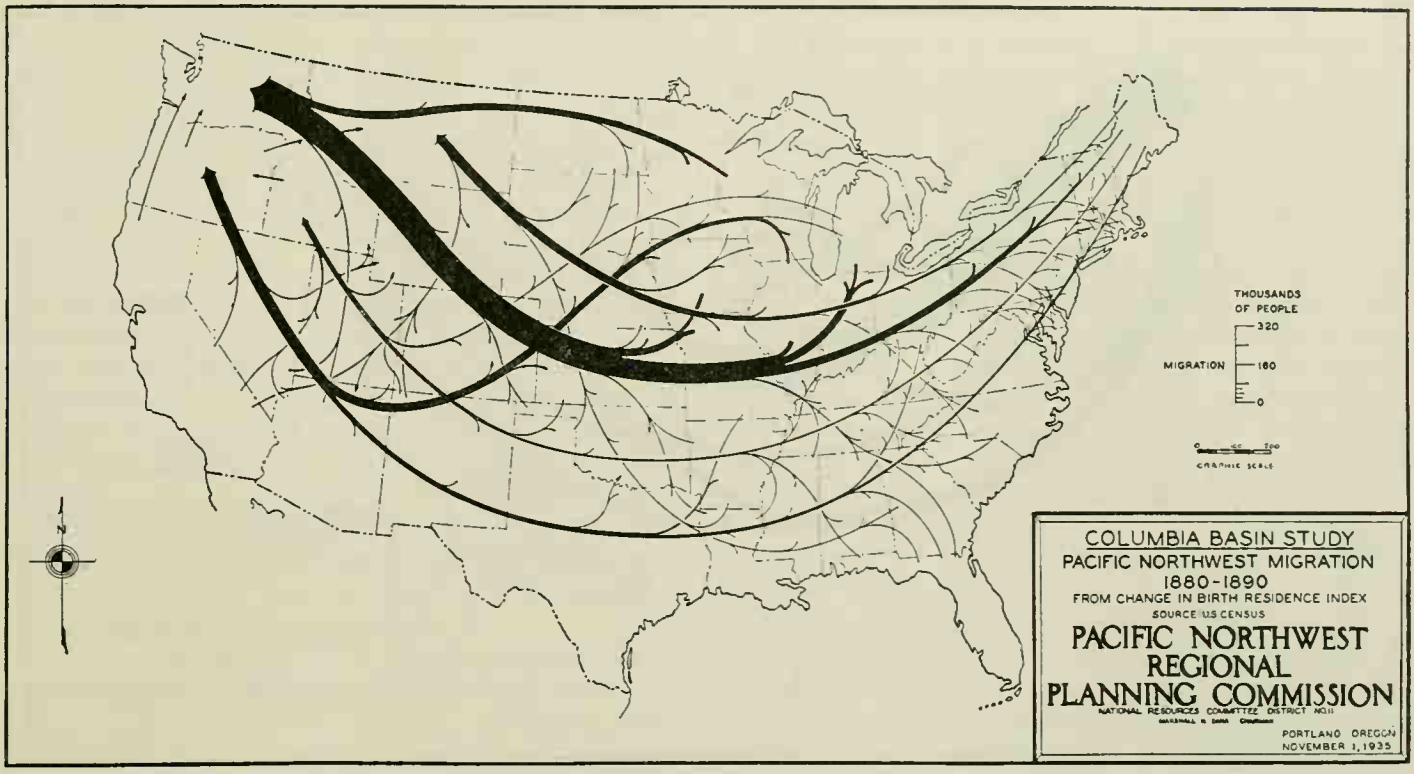

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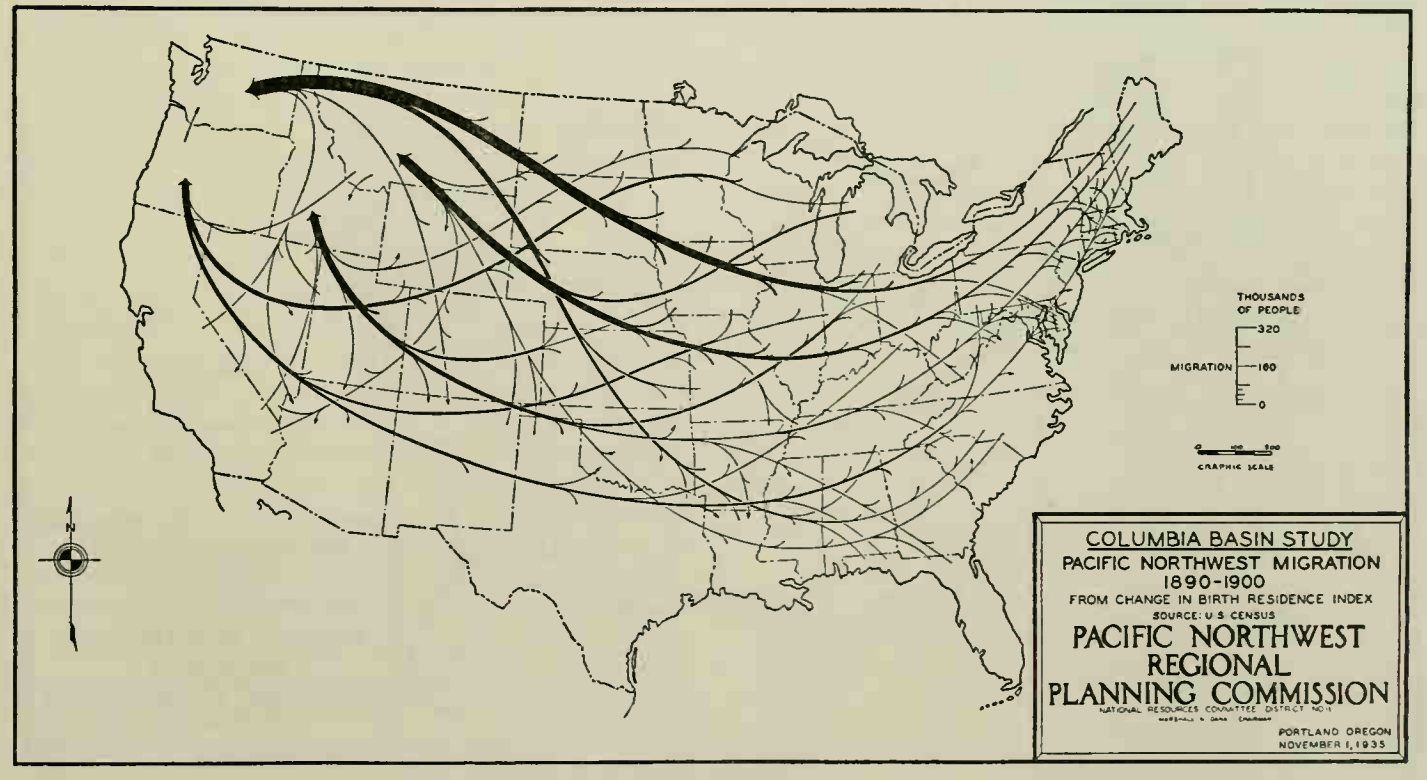

FIGURE 25.

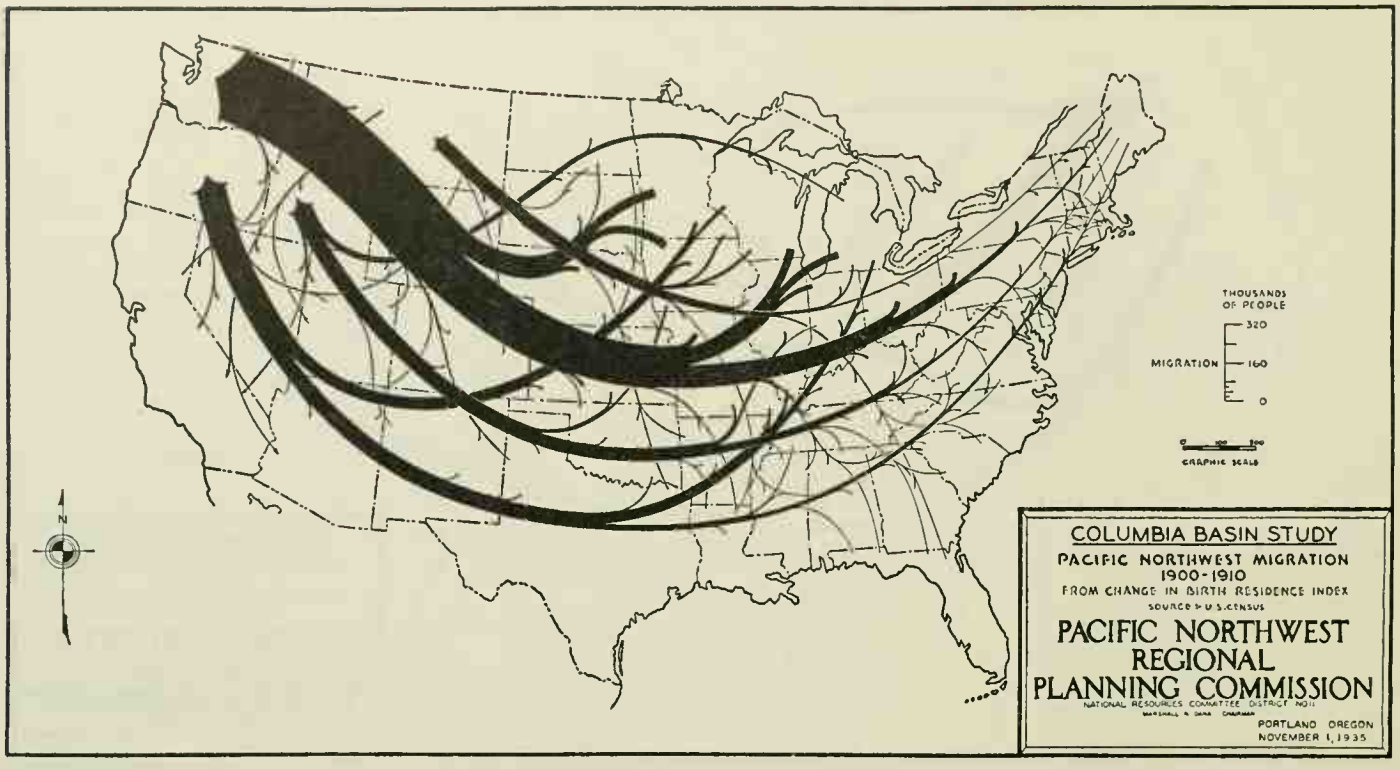

FIGURE 26.

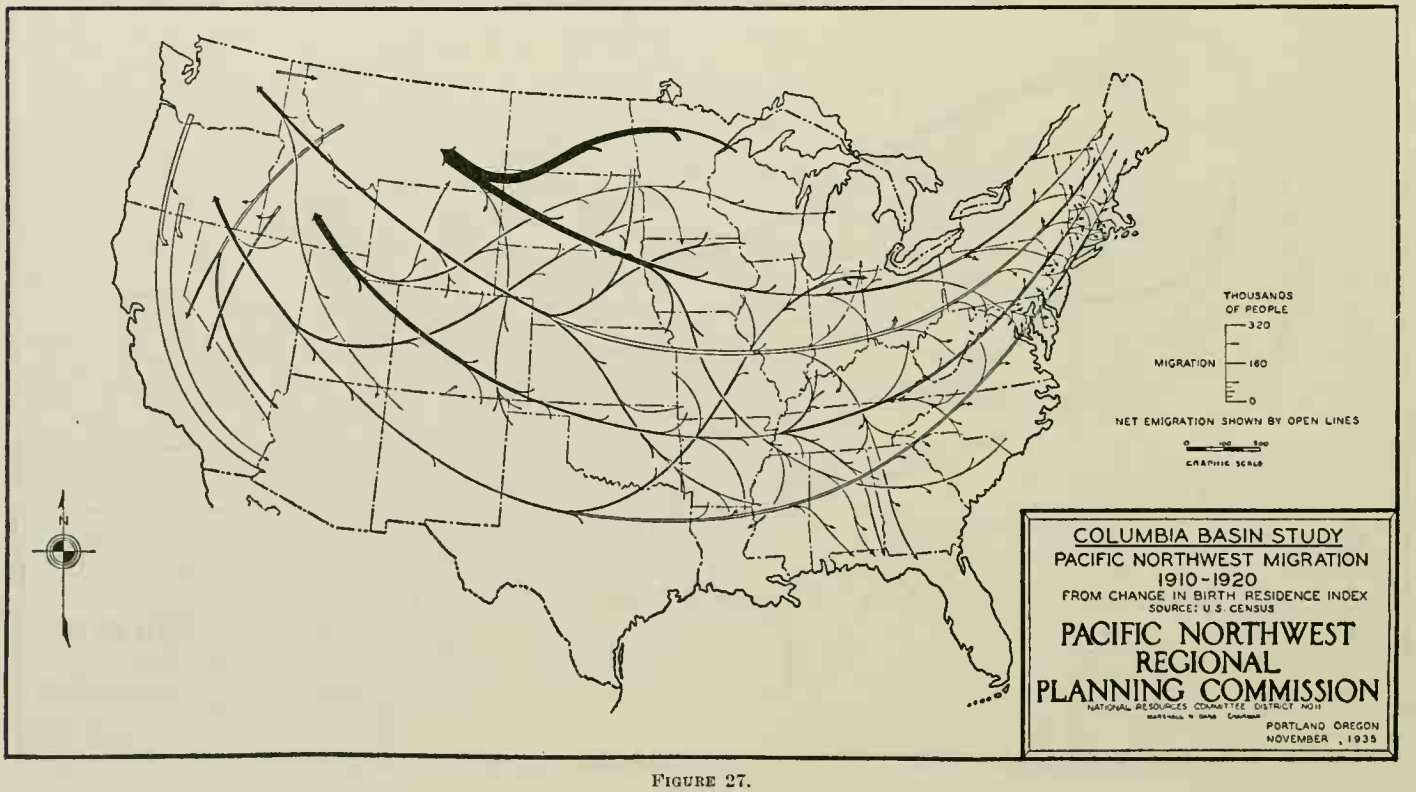

FIGURE 27.

By 1920 the westward movement of population had greatly diminished, and during the decade, 1920 to 1930, there was a reverse flow of population from parts of the region. This is evident from the map (fig. 28) showing migration to and from the Pacific Northwest States in 1920 to 1930 as indicated by the decennial changes in birth residence indices. According to this measure there was net outward movement of population in the last intercensal period from all the States of the region except Oregon. It may be that in this period the emigration from the area is overstated by this measure. This is certainly true of the State of Washington. The excess of births over deaths subtracted from the total population gain for Washington seems to indicate an inward movement of around 100,000. The explanation of the underestimate of migration into the State is probably that the death rate of residents in Washington who were born in other States was higher than the death rate of natives of Washington living in other States.

The percentage change in population from 1920 to 1930 in the Pacific Northwest is shown by counties on the accompanying map, (fig. 29). Montana, which suffered a loss of approximately 2 percent in population, had 31 counties in which population declined and 20 in which there was an increase in population. Five Montana counties were organized between 1920 and 1930, and percentage change figures for them are not available. Idaho, with an increase of 3 percent in population, had declining numbers in 25 counties and increasing in 19. There was a gain of 15.2 percent in the population of Washington, with 12 counties declining and 27 increasing. Oregon had an increase in numbers of 21.8 percent, but 10 counties lost and 26 gained population.

The sex composition of the region shown in table V has exhibited the usual characteristics resulting from migration. The ratio of men to women has fallen from very high levels as the country has become more fully developed. It is still considerably higher than for the Nation. In 1930 there were 102.5 men per 100 women in the United States but Idaho had 114; Montana, 120; Oregon, 110; and Washington, 112. In every case the ratio is lower in the cities than in the country, reflecting in part, perhaps, the rural nature of much of Pacific Northwest industry, but, probably more important, the female migration to the city.

Population distribution in the Pacific Northwest is very uneven as is shown on the map, distribution of population (fig. 30). There is a considerable concentration of people in the Puget Sound and Willamette Valley sections west of the Cascade Mountains with clusters of people at points along the coast. For the rest, population tends to be gathered along the river valleys in irrigated sections and in a few mining and lumbering districts. Slightly more than half of the population of the four States is to be found in the area west of the Cascade Mountains, although it contains only 17 percent of their total area.

While the age composition of the population of the Pacific Northwest reflects the effect of migration and declining birth rate, it is a rather curious and significant fact that it more closely approaches the age distribution to be expected in a stable population than the age composition of the United States as a whole. There are fewer persons proportionately in the younger ages and more in the older ages than are to be found in the national population. For each 100 persons in the Pacific Northwest, there are 8 children under 5, as compared with 9.3 for the United States; 27.6 between the ages of 5 and 19, as compared with 29.5; and 15.7 between 20 and 29, compared with 16.9. Above 30 years of age there is a larger number out of each hundred in the Pacific Northwest than in the United States. For the Pacific Northwest and the United States, respectively, the figures by age groups are: From 30 to 44, 22.3 and 21.5; from 45 to 65, 20.1 and 17.5; over 65, 6.2 and 5.4. The age distributions for the States and the combined area are shown in the accompanying charts (fig. 31) which also indicate the age distribution which would prevail in a stable population with 1930 death rates in each State.

The larger proportion of persons in the older age groups in the Pacific Northwest does not prevail in all four States. The proportions of older persons are highest in Oregon, somewhat less high in Washington, and below the average for the country as a whole in Idaho and Montana. The unusual number of older persons in the two coast States is probably due to the heavy migration between 1900 and 1910 and earlier, and the sharp decline in migration since that period. The mild climate west of the mountains may have had some effect in attracting persons in the older age groups.

TABLE V.—*Males per 100 females in Pacific Northwest States, 1870 to 1930*

Year	Idaho			Montana		
	Total	Urban	Rural	Total	Urban	Rural
1870	432.8	------	------	438.6	------	------
1880	202.2	------	------	256.6	------	------
1890	151.5	------	------	187.0	------	------
1900	136.5	117.0	137.9	180.3	139.1	173.2
1910	132.5	129.5	133.3	152.1	130.9	165.4
1920	118.2	106.8	122.8	120.5	110.2	125.5
Farm	------	------	120.4	------	------	126.9
Nonfarm	------	------	126.9	------	------	123.6
1930	114.3	102.4	119.5	120.0	108.5	126.3
Farm	------	------	120.1	------	------	131.8
Nonfarm	------	------	118.8	------	------	119.3

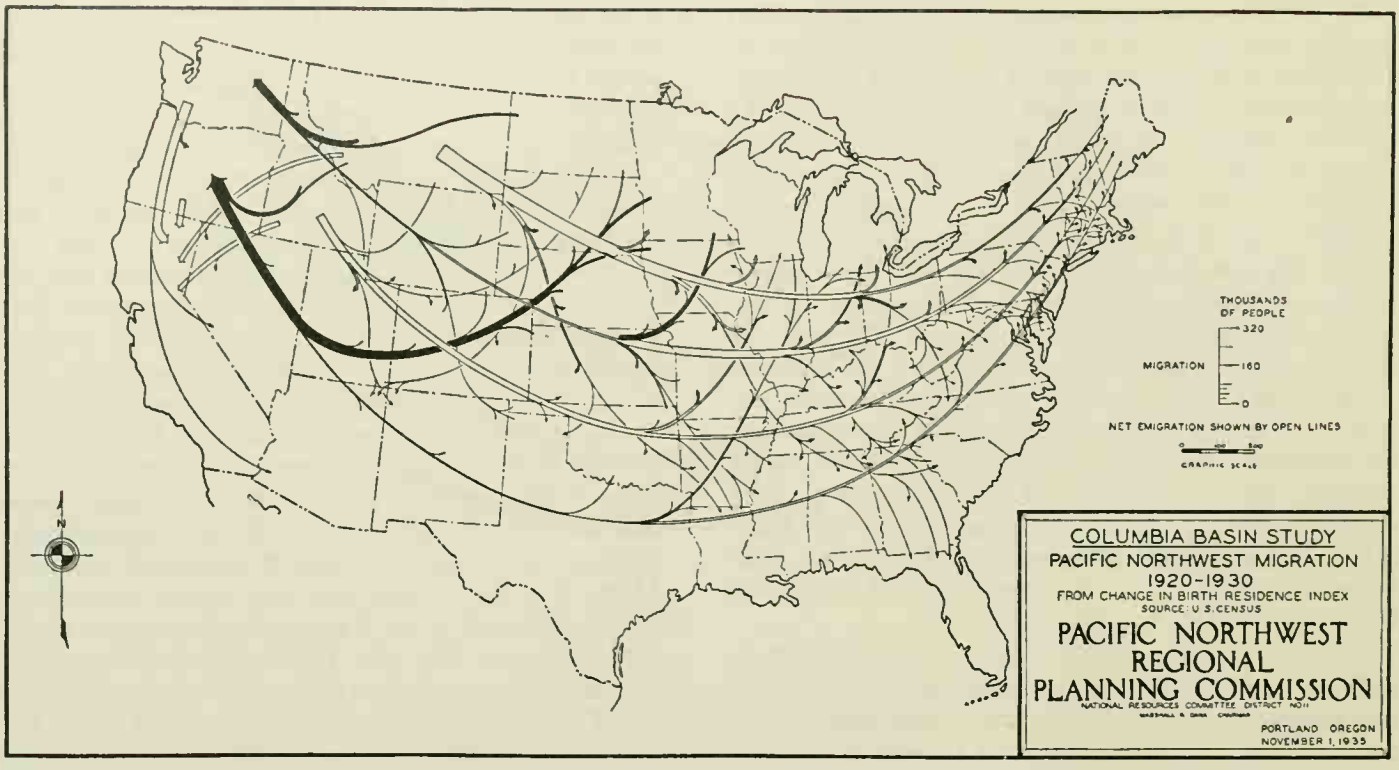

FIGURE 28.

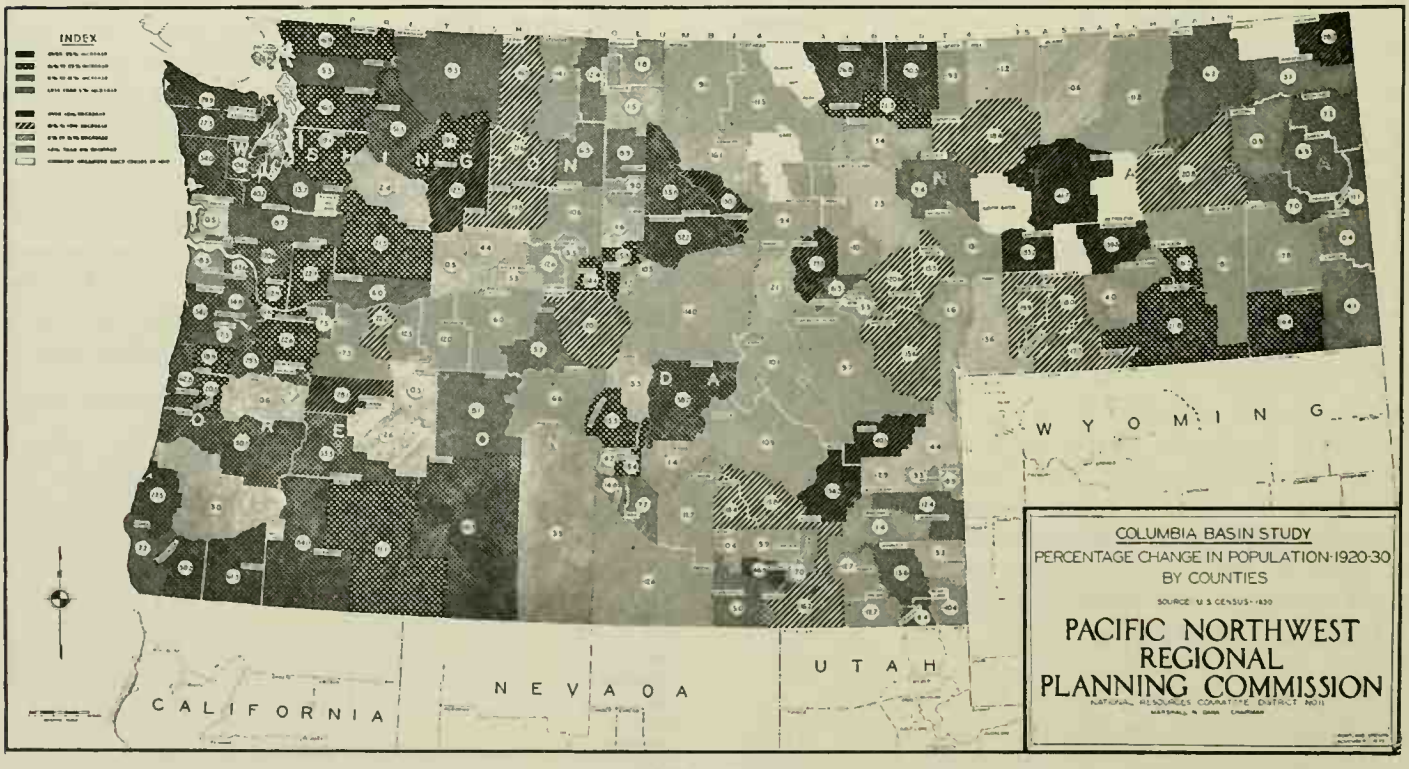

FIGURE 29.

TABLE V.—*Males per 100 females in Pacific Northwest States, 1870 to 1930*—Continued

Year	Oregon			Washington		
	Total	Urban	Rural	Total	Urban	Rural
1870	140.6			167.2		
1880	144.8			157.8		
1890	137.1			163.3		
1900	129.0	135.9	125.9	142.2	148.5	138.0
1910	133.2	131.2	134.9	136.3	132.4	140.9
1920	113.4	105.2	122.3	118.1	111.9	126.3
Farm			122.9			121.8
Nonfarm			121.6			130.3
1930	110.0	101.0	120.5	112.1	104.5	123.0
Farm			123.9			123.1
Nonfarm			117.5			122.9

Source: U. S. Department of Commerce, Bureau of Census.

Under the conditions existing between 1920 and 1930 the Pacific Northwest no longer had the power to attract large numbers of persons from other parts of the country. Immigration from other countries has ceased, and even if it should revive no great influx of foreign-born persons is to be anticipated under our present laws. There remains the question of the natural increase in the population which may be expected from the excess of births over deaths. On this point striking differences are found between the various States of the Pacific Northwest. This is shown in table VI. Idaho, with a rate of natural increase ranging from 12.3 to 1,000 in 1928 to 10.7 per 1,000 in 1932, is clearly the most prolific State in the region. In Montana the highest rate of natural increase, amounting to 9.7 per 1,000 of population, was recorded in 1922. For 1932 the rate was 7.1 per 1,000.

In contrast to Idaho and Montana, Oregon and Washington have quite low rates of natural increase. In Oregon the highest rate was 8.9 per thousand in 1921, and the lowest 2.1 in 1928. For 1932 the rate was 2.6 per thousand of population. Washington had a maximum rate of 10.1 per thousand in 1921, a minimum of 2.9 in 1928, and a rate of 3.1 in 1932.

The populations of Idaho and Montana are multiplying at a fairly rapid rate, but the people of Oregon and Washington are barely reproducing themselves. In part these differences in rate of natural increase are due to the fact that the age distribution of the population of the coast States is much closer to that of a stable population than the age distributions in Idaho and Montana. This may be seen from the above-mentioned charts showing age distribution since 1880.

Probably more important than the age compositions are the low general fertility rates of the populations of Oregon and Washington. This may be seen from the chart showing the births per 1,000 women in specified age groups in 1930 (fig. 33). The general fertility rates in Idaho and Montana are higher at all ages than in Oregon and Washington.

TABLE VI.—*Birth rate, death rate, and rate of natural increase in Pacific Northwest States since beginning of registration*

[Rates per 1,000 population]

Year	Birth rate	Death rate	Rate of natural increase
OREGON			
1919	17.4	11.4	6.0
1920	18.9	11.7	7.2
1921	19.3	10.4	8.9
1922	18.4	11.5	6.9
1923	18.2	10.9	7.3
1924	18.8	11.4	7.4
1925	17.9	11.2	6.7
1926	16.8	11.2	5.6
1927	16.4	11.5	4.9
1928	13.4	11.3	2.1
1929	14.1	11.3	2.8
1930	14.0	11.0	3.0
1931	13.7	10.6	3.1
1932	13.2	10.6	2.6
MONTANA			
1922	18.3	8.6	9.7
1923	17.1	8.0	9.1
1924	16.2	7.9	8.3
1925	15.2	7.7	7.5
1926	14.2	7.8	6.4
1927	13.7	7.5	6.2
1928	17.2	10.7	6.5
1929	18.7	10.7	8.0
1930	18.5	10.1	8.4
1931	17.9	9.8	8.1
1932	16.9	9.8	7.1
WASHINGTON			
1917	18.0	9.4	8.6
1918	19.4	13.3	6.1
1919	18.7	10.7	8.0
1920	19.8	11.1	8.7
1921	19.6	9.5	10.1
1922	18.0	10.1	7.9
1923	17.6	9.7	7.9
1924	17.4	10.0	7.4
1925	16.4	10.1	6.3
1926	15.6	10.2	5.4
1927	14.9	10.2	4.7
1928	13.8	10.9	2.9
1929	14.6	10.6	4.0
1930	14.7	10.6	4.1
1931	14.0	10.5	3.5
1932	13.5	10.4	3.1
IDAHO			
1926	17.8	7.4	10.4
1927	17.2	7.1	10.1
1928	21.7	9.4	12.3
1929	19.8	9.2	10.6
1930	20.6	9.4	11.2
1931	20.3	9.0	11.3
1932	19.5	8.8	10.7

Source: U. S. Department of Commerce, Bureau of Census.

Further evidence of the low fertility of the people of Oregon and Washington may be found in a variety of forms. Because of the inadequacies of birth registration data, it is desirable to make use of an index of fertility which is independent of birth registrations. Such an index is the number of children under 5 years of age per thousand women between the ages of 20 and 44. According to this index Washington ranked 45 and Oregon 46 among the 48 States in 1920. Idaho

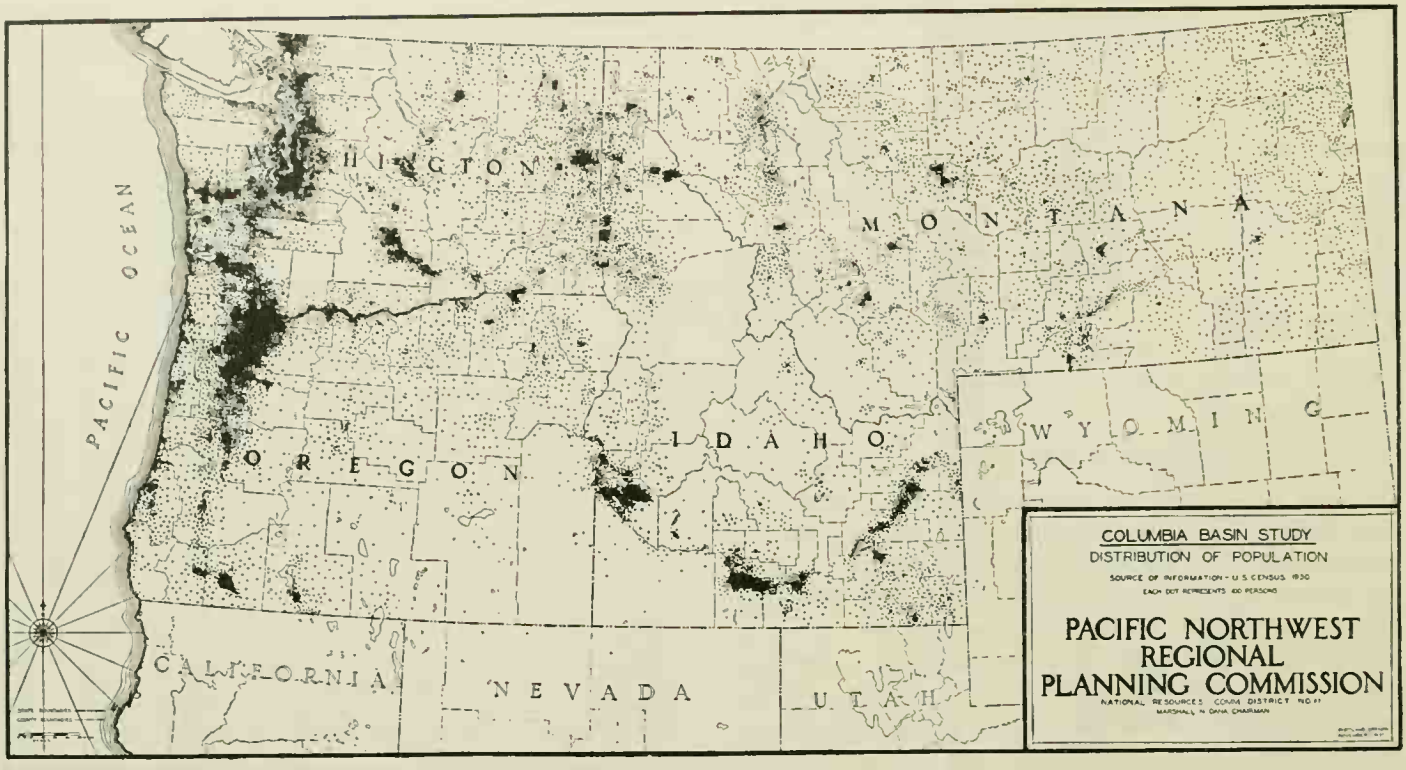

FIGURE 30.

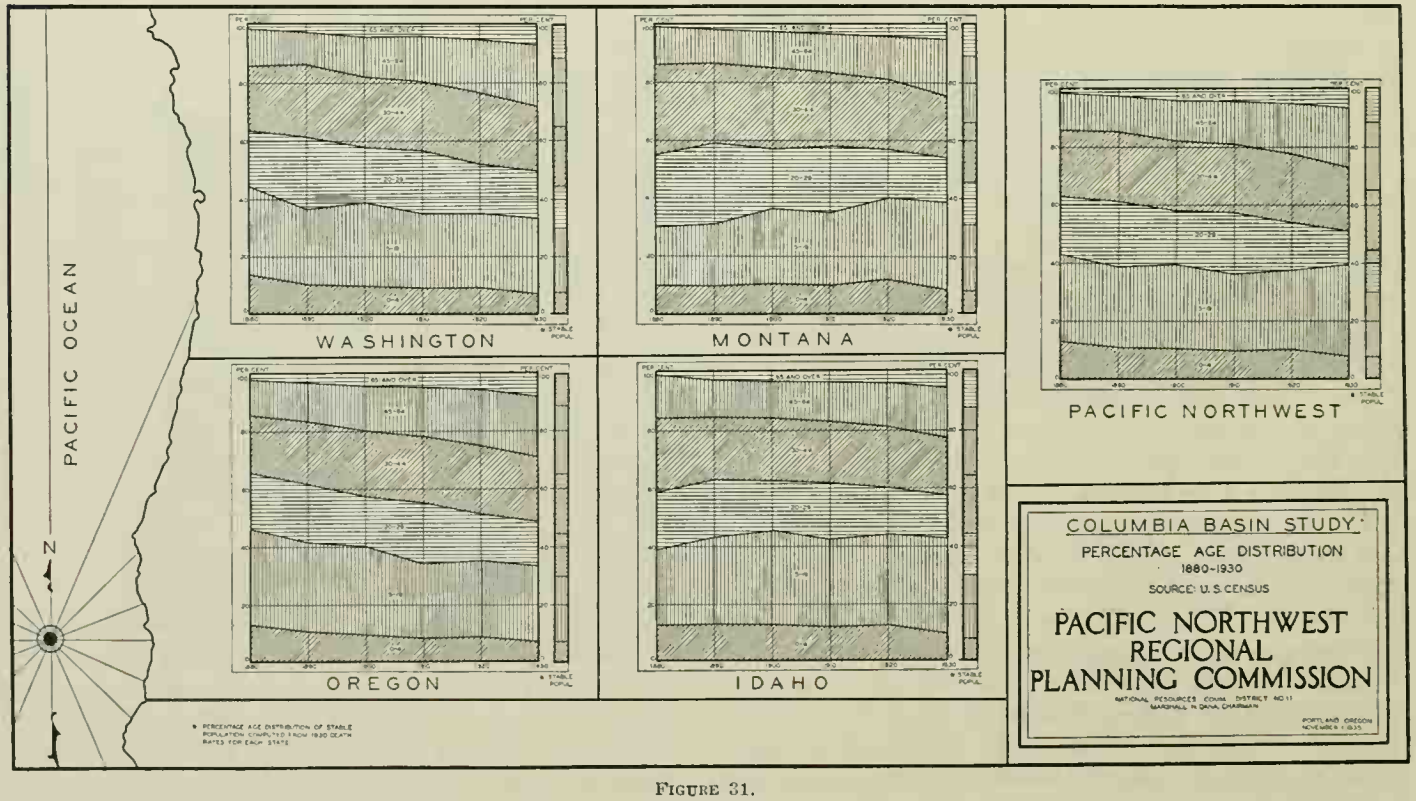

FIGURE 31.

and Montana, on the other hand, ranked 11 and 15, respectively. In 1930 the ranks were: Idaho, 12; Montana, 23; Washington, 44; and Oregon, 46.

Warren S. Thompson estimated for each State in the country the number of children under 5 per 1,000 women, 20 to 44 years of age, which would be necessary to provide for the maintenance of a stable population with 1920 death rates.[5] He found that in 1920, fertility in Oregon and Washington as measured by this ratio, was just great enough to provide for the replacement needs of a population with the age distribution which goes with stability.

Table no. VII gives Thompson's figures for 1920 for the Pacific Northwest States, and the ratios as computed for 1930. For both Oregon and Washington fertility, as measured by this index, has fallen below the rate necessary for permanent replacement needs. For Oregon the deficiency was 16 percent and for Washington 14 percent. Idaho and Montana, on the other hand, had surpluses; amounting to 32 percent for Idaho and 13 percent for Montana. The ratio of children to women is shown by counties for the Pacific Northwest in the accompanying map (fig. 32).

TABLE VII.—*Children under 5 per 1,000 women, 20 to 44 years of age, in Pacific Northwest, 1920 and 1930, and ratio required for permanent maintenance of population*

	Idaho	Montana	Oregon	Washington
Children per 1,000 native white women, 1920 [1]	729	620	463	462
Children per 1,000 women required for permanent replacement needs, 1920 [1]	470	477	463	462
Children per 1,000 women, 1930 [2]	621	540	387	396

[1] Warren S. Thompson, Ratio of Children to Women, 1920, Census Monograph XI. pp. 237-238.
[2] Computed from United States census, 1930.

The problem of predicting the future population of the Pacific Northwest is very difficult, and is approached with trepidation. It seems unwise to attempt such a forecast in detail, the probabilities of errors in judgment as to the future of certain districts or even States being so large. Our procedure will be to start with the estimates of Thompson and Whelpton and then to consider such modifications of their figures as seem warranted. Since their estimates terminate with 1960, no effort will be made to push forecasts beyond that date.

The forecasts of Thompson and Whelpton are given in table VIII. They are also shown graphically on the chart, population of Pacific Northwest, 1850–1960 (fig. 34).

[5] Warren S. Thompson, ratio of children to women, 1920, census monograph XI, pp. 237–238.

TABLE VIII.—*Thompson and Whelpton estimates of the future population of Pacific Northwest* [1]

[Thousand persons]

State	1930	1935		1940		1950		1960	
		Migration	No migration	Migration	No migration	Migration	No migration	Migration	No migration
Idaho	447	450	474	455	504	465	562	467	603
Montana	538	534	564	528	588	617	627	504	654
Oregon	956	995	969	1,028	978	1,073	980	1,078	950
Washington	1,568	1,616	1,599	1,658	1,620	1,712	1,632	1,711	1,593
Pacific Northwest	3,509	3,595	3,606	3,669	3,690	3,767	3,801	3,760	3,800

[1] Warren Thompson and P. K. Whelpton, estimates of future population by States. The figures for 1930 in this table differ from those given elsewhere in this report because of an allowance of 4 percent for underestimation of children by the census.

They are based on assumptions as to future birth rates and death rates, as well as to the cessation of inward or outward movement of foreigners. These assumptions, on the whole, appear reasonable, and we have no disposition to question them here. For an area such as the Pacific Northwest, however, national internal migration will probably be a more important determinant of population growth than birth rates and death rates. Internal migration will depend on the economic opportunities of the region compared with the rest of the country, and upon changes in relative economic opportunities in the future. Such influences cannot be given adequate weight in a formula designed for population prediction for each State in the Union. Thompson and Whelpton have recognized this difficulty and have attempted to meet it by presenting alternative estimates. In the one case they have assumed no migration, making the future growth of population depend on the assumed rate of natural increase. In the other they have assumed that migration in the future will follow the pattern of the decade 1920–30.

These estimates indicate that if there is no migration the low-fertility rates of Oregon and Washington will result in a slowly increasing population to 1950, with declining population thereafter. The higher-fertility rates of Idaho and Montana, on the other hand, will give continuously expanding population at rates higher than those actually experienced between 1920–30.

Between the last two censuses migration has caused the States with low-fertility rates (Oregon and Washington) to increase in population more rapidly than the States with higher-fertility rates (Idaho and Montana). When this migration is projected into the future, therefore, it increases the expected population of the Coast States and decreases that of the interior States.

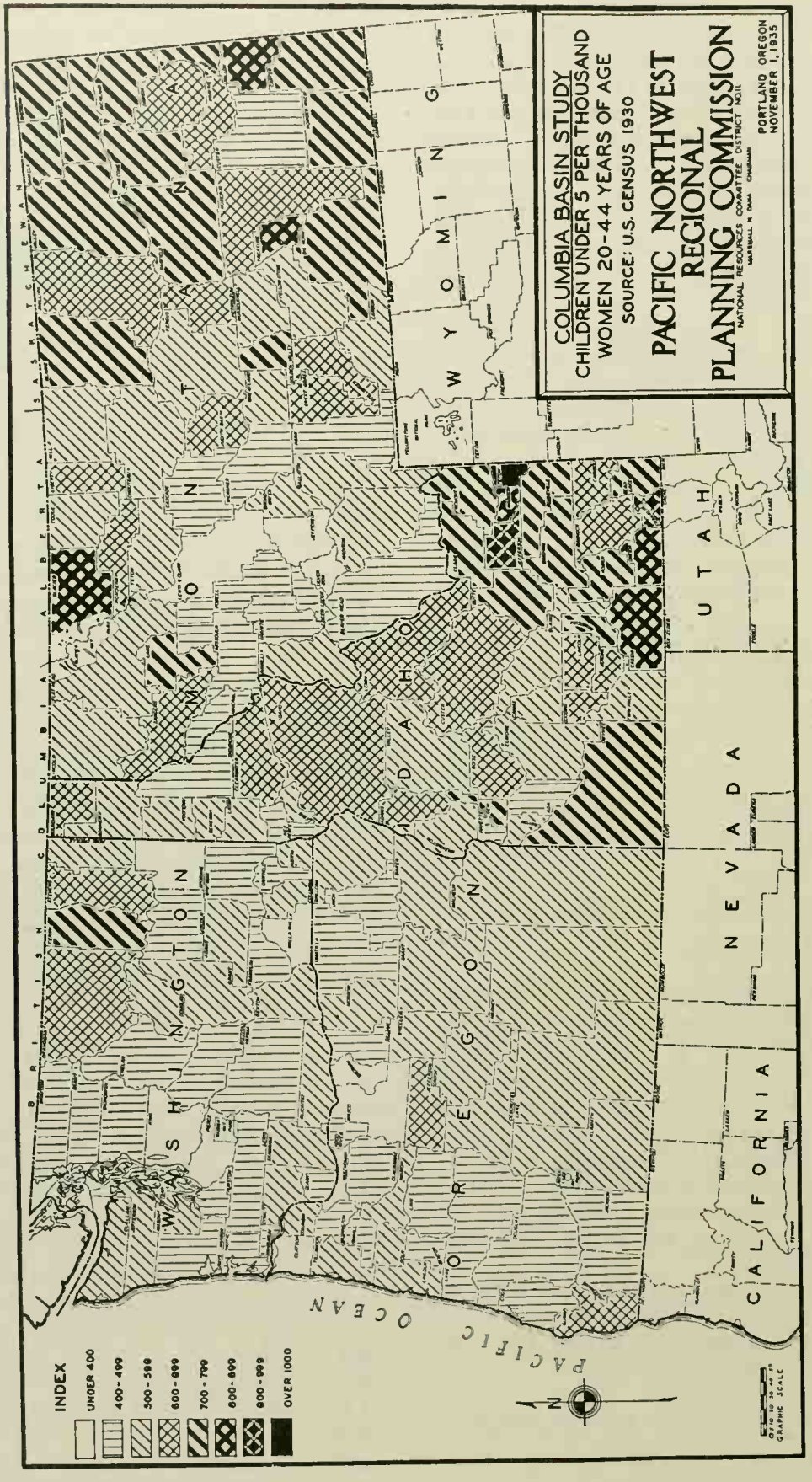
COLUMBIA BASIN STUDY
CHILDREN UNDER 5 PER THOUSAND
WOMEN 20-44 YEARS OF AGE
SOURCE: U.S. CENSUS 1930
PACIFIC NORTHWEST
REGIONAL
PLANNING COMMISSION
NATIONAL RESOURCES COMMITTEE DISTRICT NO.11
MARSHALL N. DANA CHAIRMAN
PORTLAND OREGON
NOVEMBER 1, 1935
INDEX
UNDER 400
400 - 499
500 - 599
600 - 699
700 - 799
800 - 899
900 - 999
OVER 1000
GRAPHIC SCALE
PACIFIC OCEAN
N
WASHINGTON
OREGON
CALIFORNIA
NEVADA
IDAHO
MONTANA
WYOMING
UTAH
ARIZONA
NEW MEXICO
COLORADO

FIGURE 32.

Migration is the crux of the problem of future increase in the population of the Pacific Northwest. As has already been stated, this region had largely lost its pulling power for population by 1920. If we assume that there will be no change in this situation, Thompson and Whelpton's estimates based on migration are probably as satisfactory as any. They lead to the conclusion that the total population of the region will slowly grow from the total of about 3½ million in 1930 to about 3,800,000 in 1950, and maintaining about the same level until 1960.

Since we have no disposition to compete with Thompson and Whelpton in guessing the future course of birth and death rates, the crucial question becomes that of possible change in the pattern of migration from that of the decade 1920 to 1930.

The most recent study of internal migration comes to the conclusion that the movement of population in the last intercensal period was generally from areas of low-living standards to areas of higher-living standards.[6] Does the Pacific Northwest have a plane of living sufficiently high to attract large numbers of persons from other parts of the country? The study of Goodrich, Allin, and Hayes placed eight counties in the Pacific Northwest in their highest "plane of living" category for 1928–29. The two most populous counties in the region, King County, Washington, and Multnomah County, Oregon, were included. There were 25 counties in the second "plane of living" category. The national average came just between this group and the one below. There were 67 counties in the Pacific Northwest in the first below-average group, and 63 in the next lower group. No part of the region was in the lowest plane of living category—a group in which the indices used averaged less than 15 percent of their respective national average—but there were 10 counties in the next higher group in which the indices averaged from 15 to 40 percent of their national averages.

While any study of planes of living must be tentative in nature, and not entirely conclusive, this index is probably the best available. It does not show an unusually high plane of living for the Pacific Northwest, although it is probably above the national average. This generalization is also in line with the migration experience of the region from 1920–30.

It is to be expected that the slowing down in population growth in the United States will reduce the pressure to migrate from those areas which have been producing surplus populations in the past. A great increase in population in this region will come only if the Public Works projects now under way result in a sufficiently striking rise in living standards and economic opportunities to overcome the existing attachments and opportunities in other parts of the country. Such changes might be brought about in three different ways: Increased use of electricity for domestic consumption might result in a definite increase in living standards, the reclamation of a large area of land will undoubtedly attract settlers, and low rates for power will stimulate industrial development. We will consider these possibilities in turn.

There were in 1930, 651,000 domestic customers for electric power in the Pacific Northwest, and a total of 934,415 families. This seems to indicate that almost 70 percent of the families of the region already have electric service. In view of the large areas which are now and will probably continue to be, very sparsely populated, it is hardly possible that more than 80 to 85 percent of the families will have electric service within a generation. It is reasonable to expect that the trend in domestic consumption of electricity will continue upward, especially if promotional policies are adopted by the agency or agencies in charge of the disposition of power. Prof. C. Edward Magnusson has recently estimated that annual average domestic consumption per customer in Washington will possibly increase from 1,200 kilowatt hours to some figure between 2,000 and 4,000 kilowatt hours by 1942.[7] This estimate does not include the possible increase in consumption due to use of electricity for residence-space heating. Assuming continued growth from 1942 to 1960 Professor Magnusson's maximum figure for the earlier date is a possible minimum for the later date based upon present types of use of electricity in the home.

The members of the staff of the Columbia Basin study whose chief assignment has been the problem of electric power believe that 8,000 kilowatt-hours per year is a reasonable minimum domestic consumption in view of the prospects for the development of air-conditioning, space heating, and other new domestic uses of power. The total consumption of power in the home with the present population would be about 6,000,000,000 kilowatt-hours in excess of present demand. The possibilities for increased domestic use of electricity are so challenging that the members of the staff have been unable to agree upon a maximum figure.

While the increased standards of living which would result from such large increases in the use of electricity would undoubtedly tend to attract population to the region, only a small proportion of such population could come unless there were favorable opportunities

[6] Carter Goodrich, Bushrod W. Allin, Marion Hayes, Migration and Planes of Living, 1920–34.

[7] Prof. C. Edward Magnusson, A Brief on Domestic Electric Power Markets in Washington (mimeographed).

COLUMBIA BASIN STUDY

BIRTHS PER 1000 WOMEN IN SPECIFIED AGE GROUPS

SOURCE: U.S. CENSUS

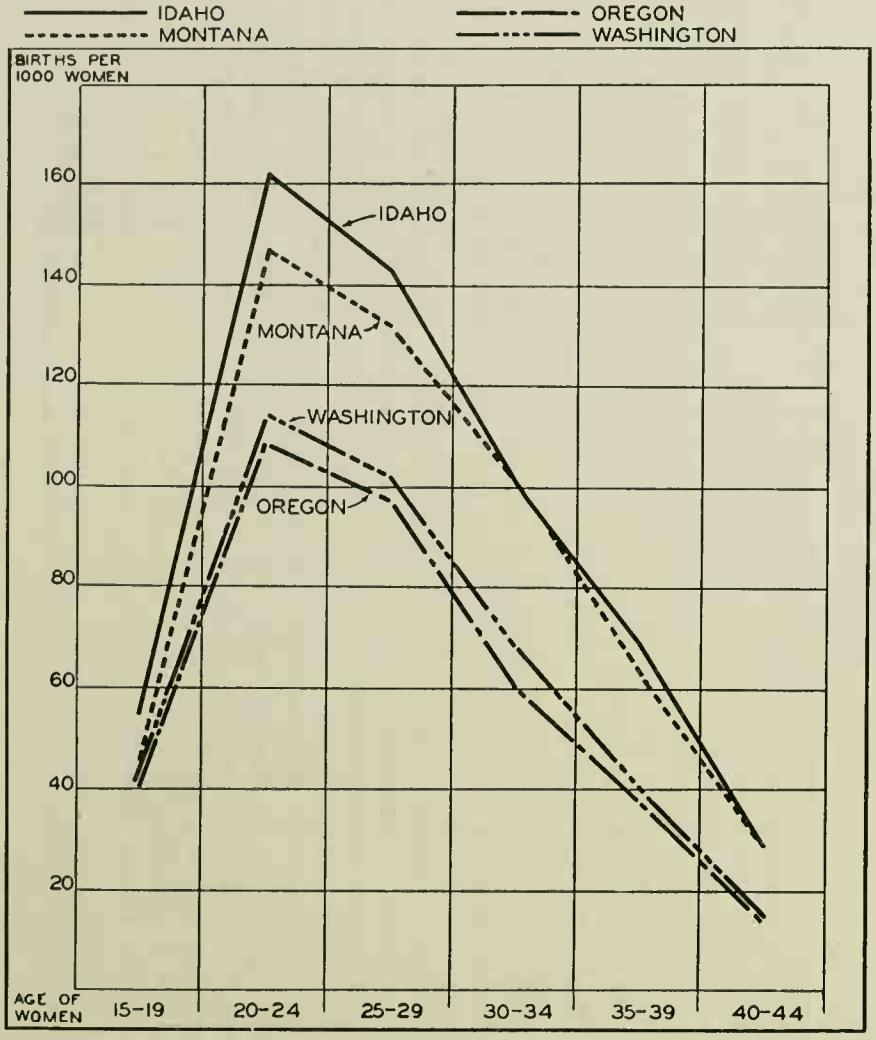

FIGURE 33.

COLUMBIA BASIN STUDY

POPULATION OF PACIFIC NORTHWEST 1850-1960

SOURCE: U. S. CENSUS

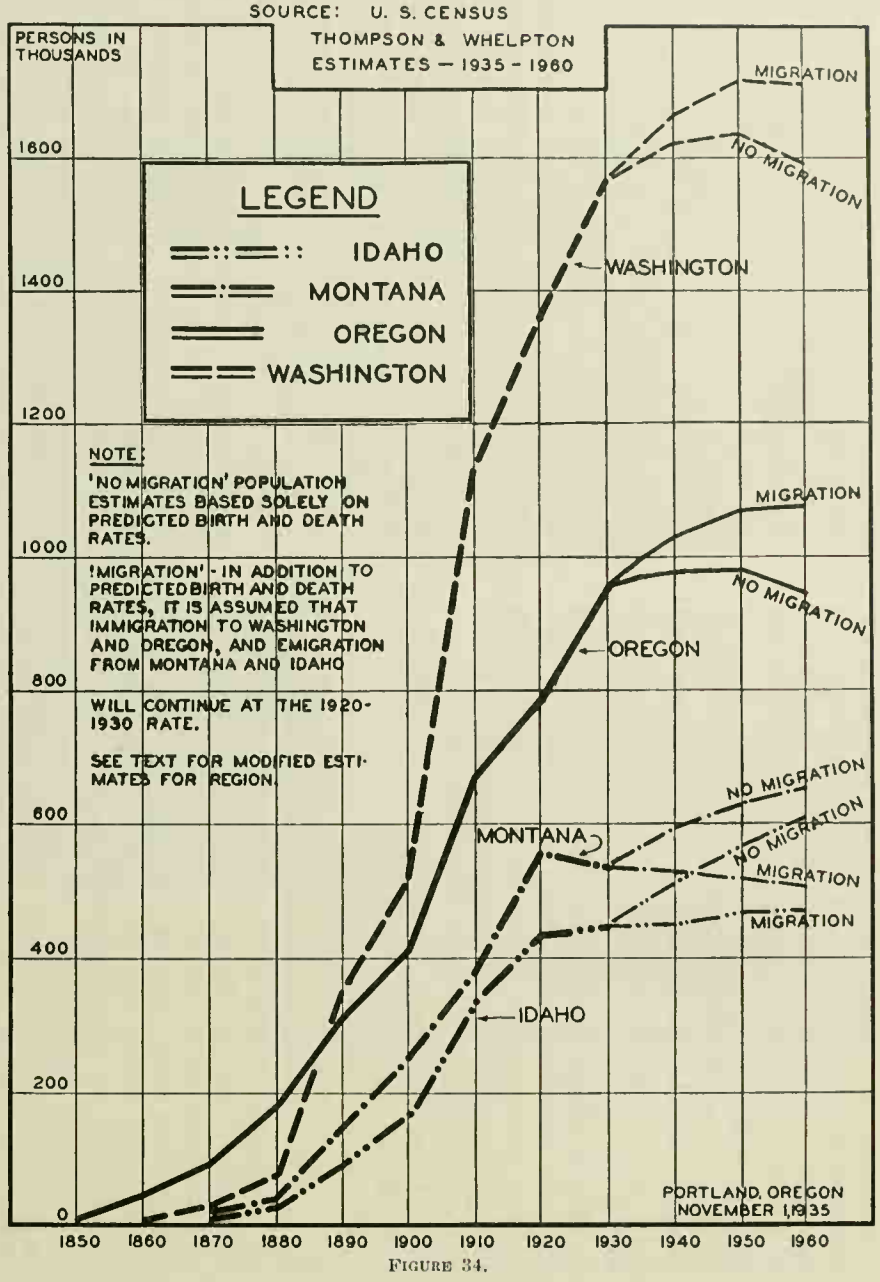

FIGURE 34.

for earning a livelihood. We may next consider what existing Public Works projects may contribute to that end.

There are a number of irrigation projects under way, and further extensions of irrigated areas which may confidently be expected to materialize within 25 years. When an effort is made to assess the potentialities of these enterprises for population growth great uncertainties arise. Much depends upon whether it will be possible to find settlers with the ability and the capital which is necessary in establishing a successful farming unit, and upon whether the program of settlement is carried out with vigor. A further difficulty is that of predicting the future course of agricultural development, in general, and its effects on agricultural enterprise in nonirrigated as well as irrigated areas. Of fundamental importance to future population growth in the Pacific Northwest is the question of the policy of the Federal Government on reclamation. A vigorous program of extending the area under irrigation, and promoting its settlement, will greatly increase the rate at which new farm population may be absorbed by the region.

Outstanding among the irrigation projects of the near future is the Columbia Basin project, which will reclaim about 1,200,000 acres of land. It is estimated that from 20,000 to 30,000 farms will eventually be created on this area. Other projects include the Roza, the Deschutes, and the Vale-Owyhee. There are prospects for irrigation development in the Snake River Valley, the Willamette Valley and other districts west of the Cascades, and in Montana. There are also some possibilities for the extension of agricultural opportunities through drainage and clearing.

The time involved in settling irrigation projects is an important aspect of the problem of population estimation. For the Columbia Basin project estimates vary as to when the dam and first unit of the irrigation system may be completed. Eight years seems a reasonable estimate. A very considerable period will be required for full settlement of the project. Persons with the necessary capital and background must be found, and social services and facilities established. Among irrigation projects in this country showing the most rapid settlement is the Imperial Valley project in California. This project showed a maximum rate of settlement of 55,000 acres, and an average of 27,000 acres per year. The constuction costs per acre of earlier projects were not more than half the cost of projects now being considered. It is clear that the per-acre cost of the Columbia Basin project will be sufficiently high to require considerable initial capital on the part of settlers. There is reason to doubt, therefore, whether the land can be settled at a rate more rapid than 50,000 acres per year. At this rate settlement will require 24 years, and it may be presumed that not more than 20,000 new families will be settled on the project by 1960. Settlement of the smaller projects can be completed in much shorter time. At the maximum, all of these projects combined might equal the Columbia Basin project in number of families settled in the period we are considering. This gives a total of 40,000 families settled on new farms by 1960.

TABLE IX.—*Farm and nonfarm populations; families and average size of families, 1930*

	Total population, 1930	Farm population	Farm families	Average size of farm families	Persons per farm	Nonfarm population	Nonfarm families	Average size of nonfarm families
Idaho	445,032	188,365	42,353	4.3	4.5	256,669	65,691	3.9
Montana	537,606	204,594	49,152	4.2	4.3	333,012	87,058	3.8
Oregon	953,786	223,667	57,754	3.9	4.1	730,119	208,574	3.5
Washington	1,563,396	304,737	77,600	3.9	4.3	1,258,659	346,233	3.6
Pacific Northwest	3,499,820	921,363	226,859	4.1	------	2,578,457	707,556	3.6

Source: U. S. Department of Commerce, Bureau of Census

From the accompanying table (table IX) it may be seen that in the Pacific Northwest farm families average 4.1 persons. The total population included in the 40,000 families would be in the neighborhood of 164,000 if this average applies to the settlers. In all likelihood a considerable number of the settlers will come from within the region; from submarginal lands and from declining industries. For lack of a better estimate it is assumed that one-third of these people will come from other parts of the Pacific Northwest. The resulting net increase in farm population is 110,000 persons.

The addition of a basic industry population also involves an increase in persons engaged in service industries. There will be a growth in villages, towns, and cities as a result of the expansion in agriculture. The extent of this growth is very hard to estimate. Yakima County, Wash., a highly developed irrigation district, has a rural farm population of 41 percent of the total. This indicates a service population of about 1.5 persons for each farm resident. The gross population dependent upon lands reclaimed by 1960 will probably be about 275,000.

A problem of considerable difficulty is that of judging the extent to which the opportunities for employment, made available by the provision of irrigated land and cheap power, will be absorbed by the present population of the region, and to what extent they will draw migration from other areas. Since migration seems to flow from areas of lower to areas of higher

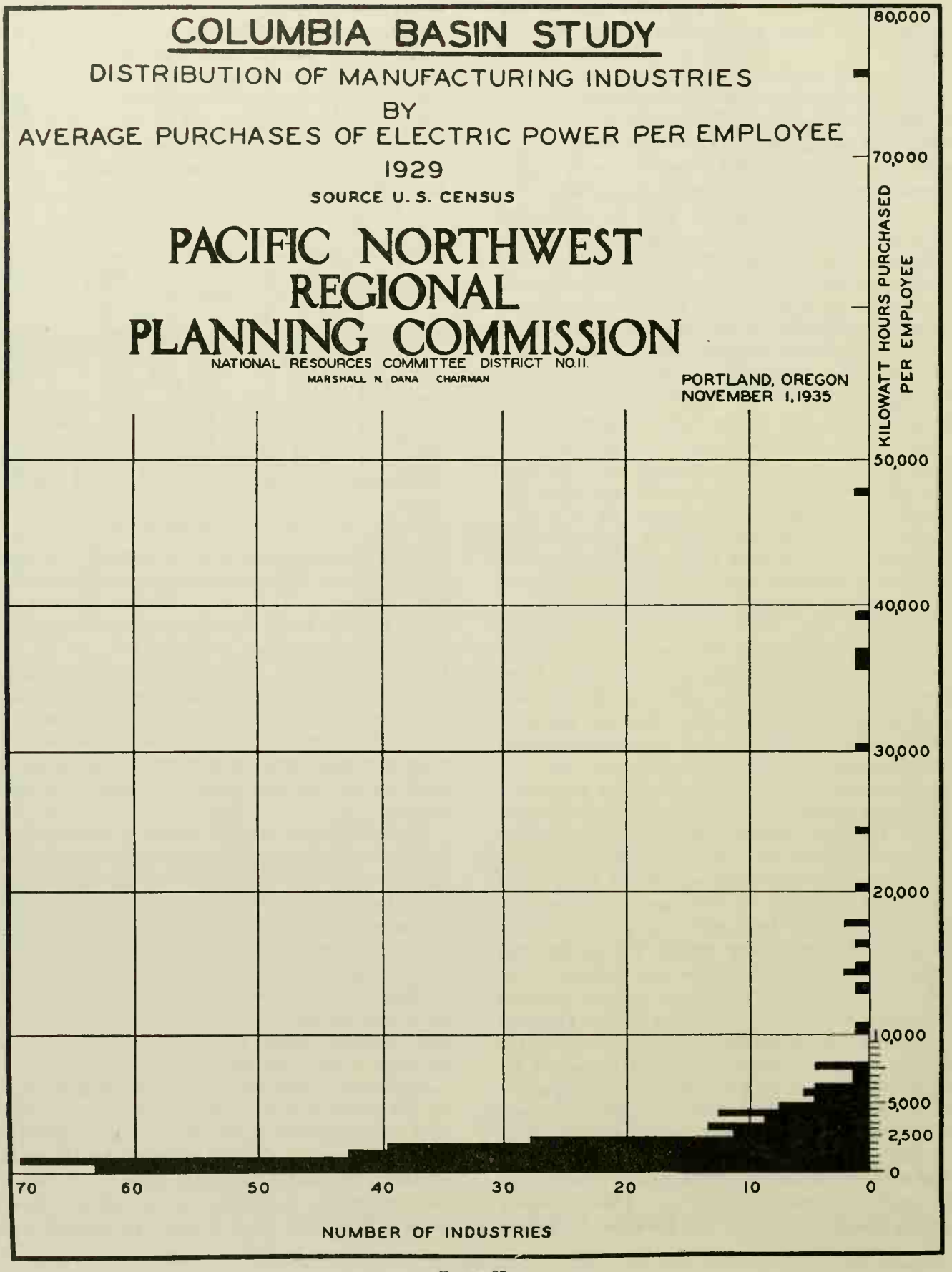
COLUMBIA BASIN STUDY
DISTRIBUTION OF MANUFACTURING INDUSTRIES
BY
AVERAGE PURCHASES OF ELECTRIC POWER PER EMPLOYEE
1929
SOURCE U. S. CENSUS
PACIFIC NORTHWEST
REGIONAL
PLANNING COMMISSION
NATIONAL RESOURCES COMMITTEE DISTRICT NO. II.
MARSHALL N. DANA CHAIRMAN
PORTLAND, OREGON
NOVEMBER 1, 1935
KILOWATT HOURS PURCHASED PER EMPLOYEE
80,000
70,000
50,000
40,000
30,000
20,000
10,000
5,000
2,500
0
70
60
50
40
30
20
10
0
NUMBER OF INDUSTRIES

FIGURE 35.

living standards, the order of events would seem to be; first, fuller employment and higher living standards for the present population; second, an influx from outside. An estimate of population increase will depend on the assumptions made as to the extent to which the existing population will itself benefit from the economic opportunities being provided. There are at the present time many unemployed persons in the Pacific Northwest, and there are also many persons engaged in service occupations who are not making satisfactory income. They will be eager to seize any new opportunities which may develop.

The present service population could readily (and gladly) provide for the needs of a considerably larger population than now exists in the area. Even when a considerable improvement in general business occurs, a differential of higher employment and better business will be necessary to attract migrants from other parts of the country. A judgment that one-third of the service population of expanding basic industries would come from within the region seems conservative. On this basis the net population increase due to reclamation developments would be 220,000.

An increase of 220,000 in the farm population will result in greater demand for electric power for domestic use. Assuming that 75 percent of the farm families and 80 percent of the nonfarm families have electric service, this will add about 350 million kilowatt-hours to the annual demand for electricity. The augmented population would conceivably consume 5.6 billion kilowatt-hours in excess of present consumption.

The total firm power available upon completion of the present Federal projects is estimated at 11.4 billion kilowatt-hours in excess of present demand. If 5.6 billion kilowatt-hours are preempted for domestic and farm use there remains something less than 6 billion kilowatt-hours which may be offered at low rates to industry. If we assume that this power is all absorbed by new industrial plants and by their employees as domestic consumers, what increase in population would result?

The range in the amount of electric power purchased by different manufacturing industries is tremendous. Of the 326 industries listed in the Census of Manufactures, "Turpentine and Rosin" shows the smallest purchases of electric energy; all the plants in the United States combined to purchase 8,950 kilowatt-hours in 1929. The largest purchaser of electric power was "Chemicals, not elsewhere classified", with 5,817,023,787 kilowatt-hours demand from outside sources. These figures do not include the energy generated by the manufacturers' own plants.

When the amount of electric power purchased per person engaged in the industry is computed the contrast is even more striking. It runs from 0.21 kilowatt-hour per person for "Turpentine and rosin" to 76,988 kilowatt-hours for "Chemicals, not elsewhere classified." The distribution of manufacturing industries by this characteristic is shown in the accompanying chart (fig. 35). It may be seen that a very large majority of manufacturing industries use relatively little power per employee compared with the consumption by the largest users. In this analysis all the persons engaged in the industry were included: Wage earners, salaried employees, proprietors, and firm members.

The figures used in constructing this chart are averages for all the plants in the United States. There are undoubtedly considerable variations within each industry in the amount of power purchased. It is also probable that, because of technical developments, plants recently built and those to be built in the future will consume considerably more electric power per worker than the average for the industry.

Manufacturing industries may be divided into two distinct groups, heavy purchasers and light purchasers of power per employee. The line between the two categories may be drawn at the point where the industry uses less power than the employee will be using in his home a generation hence. This puts the dividing line at 8,000 kilowatt-hours according to our estimates. Of the 326 industries listed in 1929 only 22 purchased more than 8,000 kilowatt-hours per person engaged in the industry. The table X lists these 22 industries and shows their purchases per employee and rank. It also shows the total electric energy purchased, and rank among 326 industries by this measure. The 22 industries which were the lightest purchasers of power per employee are also listed (excluding industries with total purchases less than 1,000,000 kilowatt-hours) and the same information given. The 22 large purchasers are the industries in which the cost of power is an important consideration. Without question there are also plants and processes in the remaining 304 industries where power costs are important—and the trend is undoubtedly in the direction of increasing importance—but the distinction is sufficient for our purposes.

Available industrial power in the Pacific Northwest may be used in either of two ways. It may be used in the development of industries which are very heavy users of power and which might with a few plants consume all the electric energy available. The surplus energy which will be available could be absorbed in a relatively short time in this way. The other alternative would be to use the energy in the development

of industries for which this region has advantages in addition to cheap power—but which use less power per employee. The absorption of the total supply of energy in this manner would require a number of plants and considerable time. Population growth will be greatly influenced by the extent to which the ultimate development takes one course or the other. On the one hand there may be a small population gain achieved rather quickly; on the other hand there might be a much larger gain in population over an extended period of time.

TABLE X.—*Manufacturing industries purchasing large and small amounts of electric energy per person employed in 1929*

[Source: U. S. Census]

	Purchases per employees		Total purchases	
	Kilowatt-hours	Rank among 326 industries	Kilowatt-hours	Rank among 326 industries
LARGE PURCHASERS				
Chemicals, not elsewhere classified	76,988	1	5,817,023,787	1
Smelting and refining, zinc	47,288	2	600,599,169	12
Ice, manufactured	39,303	3	1,600,018,072	5
Compressed and liquefied gases	36,693	4	236,632,416	30
Minerals and earths, ground or otherwise treated	36,152	5	74,219,548	68
Cement	35,741	6	1,385,192,739	6
Smelting and refining, copper	30,434	7	503,280,375	17
Fuel, briquettes and boulets	24,832	8	12,788,492	153
Pulp (wood and other fiber)	21,231	9	565,283,377	13
Paper	19,642	10	2,260,733,550	4
Smelting and refining, lead	17,898	11	101,839,380	55
Wall plaster, wall board, insulating board, floor composition	17,558	12	157,912,188	38
Malt	16,091	13	11,939,480	160
Oil, cake, and meal, linseed	14,498	14	42,755,457	91
Shortenings (not including lard) and vegetable cooking oils	13,861	15	48,334,845	85
Flour and other grain mill products	13,577	16	531,215,721	15
Cereal preparation	12,605	17	103,409,944	52
Oil, cake, and meal, cottonseed	10,049	18	191,329,310	34
Oils not elsewhere classified	8,277	19	14,418,311	147
Ice cream	8,187	20	258,918,809	29
Wire, drawn from purchased rods or bars	8,076	21	202,082,502	33
Iron and steel steel works and rolling mills	8,034	22	3,466,883,998	2
SMALL PURCHASERS [1]				
Baskets and rattan and willow ware, not including furniture	384	286	3,896,778	230
Lace goods	384	287	2,954,472	243
Cash registers; adding, calculating and card-tabulating machines	393	288	7,721,993	190
Leather goods, not elsewhere classified	376	289	2,712,235	247
Clothing, women's not elsewhere classified	364	291	81,046,396	65
Umbrellas, parasols, and canes	362	292	1,253,610	282
Embroideries	334	295	2,721,739	246
Tobacco: Chewing, smoking and snuff	333	296	3,989,966	228
Perfumes, cosmetics, and other toilet preparations	331	297	6,454,173	201
Clothing, work (except shirts) coats, men's	324	300	13,361,702	151
Clothing (except work), men's, youths', boys'	320	301	54,107,023	82
Cigars and cigarettes	292	306	33,901,190	102
Suspenders, garters, and other elastic woven goods	286	307	1,417,539	280
Handkerchiefs	273	308	1,782,026	268
Hats, straw, men's	273	309	1,034,933	287
SMALL PURCHASERS—continued				
Shirts	264	311	16,858,601	130
Gloves and mittens, made from purchased material	236	313	2,344,823	255
Corsets and allied garments	235	314	3,754,115	234
Pocketbooks, purses, and card cases	225	318	2,711,666	225
Corn sirup, corn sugar, corn oil and starch	212	319	1,747,248	269
Gloves and mittens, leather	208	320	2,152,717	260
Watches and watch movements	159	323	1,855,421	266

[1] Excluding industries purchasing less than 1,000,000 kilowatt-hours in 1929.

A striking example of the first type of development is to be found in the proposal made by the Bohn Aluminum & Brass Corporation for the use of the power to be generated at Bonneville. According to newspaper accounts this company proposes to construct an aluminum refining plant which would utilize all the power to be generated at Bonneville, and employ 5,000 men. Utilization of power at this rate would mean that the total available surplus power would be consumed in providing for a gross increase in population for the Pacific Northwest of no more than 83,000.

The Table XI indicates what might be expected in gross population increase from the industrial use of 6 billion kilowatt-hours per year at various rates per person engaged in the industry. For our purposes we may assume that 25 years will elapse before this available energy is fully utilized. The assumptions made in arriving at these estimates are:

1. That service industries will employ 1.5 times as many persons as the basic industries.
2. That the increase in population will be 2.3 times the increase in gainful workers (2.3 is the ratio for 1930 of the nonfarm population in the Pacific Northwest to persons gainfully employed in nonagricultural pursuits).
3. That the average size of family for the nonfarm population is 3.6 (the average size for 1930).
4. That 80 percent of all nonfarm families will be receiving electric service by 1960.
5. That average annual per customer domestic consumption of electricity will be 8,000 kilowatt-hours by 1960.

The most important factor which has not been included in these estimates is the increase in consumption of power by service industries. This item was not included because no basis for estimating it was available. Failure to include it tends to make the gross population increase figures too large. Another factor

which tends in the same direction, and which it has been impossible to estimate, is the demand for power for pumping on irrigation developments not yet under way. This may be especially important in Willamette Valley, and in other irrigation west of the Cascades. A large amount of pumping on new projects will make use of surplus power, and will not affect the amount of firm power available.

TABLE XI.—*Estimates of gross population growth from the use in new industries of 6 billion kilowatt-hours per year under various assumptions* [1]

Assumption as to power purchases per employee	Purchases of electric power per employee	Direct employment in industry	Gross population increase (thousands)
	Kilowatt-hours		
Rate indicated by news accounts for Bohn Aluminum & Grass Corporation	400,000	14,423	83
At average for chemical industry in 1929	77,000	64,516	372
At average for smelting & repairing zinc industry in 1929	47,000	95,238	548
At average for cement industry in 1929	36,000	115,385	664
At average for pulp, wood and other fiber, industry for 1929	21,000	162,162	934
At average for paper industry for 1929	20,000	166,667	960
At average for flour milling in 1929	14,000	200,000	1,152
At 8,000 kilowatt-hours per employee	8,000	250,000	1,440
At average of all industries in 1929	3,209	312,356	1,799

[1] Additional assumptions: Service population equal to 1.5 times the basic industry population; increase in total population equal to 2.3 times the increase in gainful workers; the average size of the nonfarm family is 3.6; that 80 percent of nonfarm families will be receiving electric service by 1960; average annual domestic consumption of electricity will be 8,000 kilowatt-hours by 1960.

Estimates based on data taken from U. S. Department of Commerce, census of manufactures, and consumption of fuel and electric energy in manufacturing industries, 1929.

In arriving at the gross population increase figure which it seems wise to adopt, it is safe to assume that the industries which are heavy purchasers of power per employee are the most likely to come to the area, and the new plants constructed here will probably consume more power per employee than the average plant in the same industry at the present time. With these factors in mind a gross population increase from industrial use of the power now being developed of approximately 1,000,000 persons seems a reasonable maximum. This estimate will prove to have been too large if the power is largely absorbed by industrial plants which are purchasers of large amounts of electricity per employee. On the other hand, it will prove too small if the power supply is largely used in diversified manufacturing. The latter outcome can hardly be expected unless it is deliberately planned and actively supported by the policies of those who will dispose of the power.

The estimate of gross population increase from industrial expansion must be adjusted in the light of estimates of the prospects of industries now in the area. Lumber manufacturing is the most important in the Pacific Northwest and represents about one-half of all manufacturing activity. The forestry section of this report indicates that at the present time there are 165,000 employees directly engaged in forest industries. It seems quite likely that the number of workers engaged in lumbering will be considerably less by 1960. A number of conditions lend force to this presumption. There is considerable prospect of the introduction of labor-saving machinery. If cutting continues at the present rate available timber supplies will be largely depleted in 25 years. It is conceivable that the necessary steps to stabilize the industry will be taken, but it will require energetic cooperative efforts along a number of lines. There is a real possibility that the necessary measures will not be taken, or that action will be too slow to prevent considerable decline in the industry.

Another serious industrial problem arises out of the great dependence of Montana on the copper mining and refining industry. The development of low-cost foreign production of this metal seriously jeopardizes this most important industry. While it is possible that discoveries of exploitable mineral resources will counterbalance decline in present activities, or that demand for their output will be strong enough to warrant their continuance for a considerable period, there is no assurance that either of these escapes will be available. The possibility of a considerable shrinkage in the population dependent upon mineral resources must be given consideration in estimating future developments.

One of the chief problems which the economic life of the Pacific Northwest faces is that arising out of the seasonal nature of much employment in the region. A deal of effort has been expended in the attempt to secure evidence sufficient to present this problem in a definitive form. Unfortunately, information is so scanty, and the available data so unsatisfactory that no clear-cut presentation of the situation is possible. Enough was learned, however, to lead to the conviction that seasonal variations in employment are very great—probably as large if not larger than for any other similar area in the country. Important types of employment; agriculture, lumbering, and construction have seasonal variations of similar types. As a result, not only do many employed persons have very low annual earnings, but a seasonal relief problem of considerable magnitude is created. Industries with complementary seasonal labor demands and using similar types of labor might make a valuable contribution to the economic well-being of the Pacific Northwest, although adding very little in the way of support for new population.

We have concluded that a gross increase in population of the order of one million would probably result in the region from the utilization for industrial purposes of an additional 6,000,000,000 kilowatt-hours of electric energy per year. The members of the staff preparing this report whose special assignment is the study of power feel that there is considerable probability that expansion of industrial consumption of electrical energy in the area will go this far if not farther by 1960. If this prediction is realized, recourse may readily be had to additional sources of power, since the potential hydroelectric possibilities of the region can provide an additional 100,000,000,000 kilowatt-hours of energy per year.

A most elusive aspect of the problem of forecasting is revealed when an effort is made to decide the proper deductions to make from the estimate of gross increase in population in arriving at the expected net growth. How much of the potential increase will be absorbed in better employment for the present population? How much by declining employment possibilities in lumbering? In mining? If power for industrial purposes is being used as a basis for estimating, are not the industries which may decline purchasers of power at the present time, and will not the decline in their demand for energy make possible increased consumption by other industries and how will the developing industries compare with these predecessors in population support per kilowatt hour of energy consumed?

These questions cannot be answered, and all that can be done is to give a very subjective appraisal of their probably net effect. It is possible that the various retarding effects on population growth from industrial expansion may be approximately offset by tendency toward growth from extension of irrigation, and from the enlargement of foreign trade. The conclusion which results from this assumption is that probable population growth in the Pacific Northwest may be of the order of a million persons. This is 700,000 more than the estimate of Thompson and Whelpton.

The fragile foundation on which this forecast is based is made clear by the above discussion. It is quite conceivable that declines in agriculture, in lumbering, and in mining will be so pronounced as to completely overcome the possibilities for growth inherent in irrigation development, and the utilization of a great supply of electric energy. On the other hand, there is a possibility of greater population support and economic stability through increased diversification in the economy of the region. This diversification would be represented in agriculture by an increasing attention paid to livestock, dairying, poultry raising, fruit and vegetable growing, and the canning in this region of these products. It would be represented in mining by developments in smelting and treating mineral products which have heretofore been shipped as ores or concentrates to older settled sections of the country. It would be represented in lumbering by the growth of remanufacturing plants, and in other manufacturing by the increase in textile and other light manufacturing and fabricating industries. Furthermore the Pacific Northwest has been less thoroughly explored than many other parts of the country, and there are greater chances that important resources are yet to be discovered. The great known resource of hydroelectric energy will count for much in a world which is constantly increasing its use of this magic servant. Combined with some resource as yet unknown it may confound the prophet, and double or triple the population increase which he has foretold.

STAFF REPORT—SECTION II
4. THE FUTURE OF THE REGION
GENERAL SUMMARY, ANALYSES, AND RECOMMENDATIONS

Predictions as to the future of the Pacific Northwest region are very difficult to make at this time. Past rates of growth, as indicated by population, have not followed a smooth curve. Irregularities of considerable degree may be associated with developments of a pioneer character—mining, railroad construction, forest exploitation.

Still in a stage not far removed from the pioneer era, the region will be subject, and probably unusually sensitive, to major events and developments. It has been primarily agrarian in character, its basic activities having been the producing of raw materials from field, range, forest, and mine. Relatively, fabricating and manufacturing activities have played a smaller part.

The region now faces other events and changes which will have far-reaching effects:

With Federal aid, a higher development of its unparalleled and perpetual water-power resource has begun, which will probably cause an accelerated industrial growth and help to make possible a higher standard of living.

With Federal aid, further important steps have been taken toward the development of a modern trunk inland waterway system, which, through lower-cost transportation, will bring the resources of the hinterland nearer to consuming industries and markets.

The Federal Government is also undertaking, and aiding financially, extensive irrigation developments, to keep pace with the anticipated industrial development and with the withdrawal of submarginal lands from crop production.

These are the new or greatly enlarged factors which are certain to bring about further changes in rate of growth. The time factor, still largely an indefinite one, depends upon policies new or still unformed, upon explorations and researches still unmade, upon scientific and technical advances not yet emerged from the laboratory, upon events—political, economic, and social—barely foreshadowed. The difficulty of evaluation of this factor is increased by the checks to older trends and the new orientation resulting from several years of depression.

The preliminary population studies and estimates reviewed above give some idea of the range of probabilities and possibilities of population growth within the next generation. There is still wider range of growth possibilities in other and perhaps more important ways—in wealth, in distribution, in buying power, in living standards, in culture, in public works, and improvements, and so on. Although much of past American prosperity has been based upon population expansion, this is not necessary to national prosperity or general well-being. So far as the Pacific Northwest is concerned, however, it will probably benefit from the, perhaps limited, redistribution of national population which is essential to the more rational use and enjoyment of the Nation's resources.

These newer and larger factors of power, river, industrial, and land development are superimposed upon a series of other physical, economic, social, and political factors, some favorable, and some unfavorable, to a greater than average growth in the Pacific Northwest. These and their relationships and effects will be reviewed briefly.

Physical Conditions

Physical conditions generally tend to favor a rate of growth in excess of the national average. The region has a great ocean frontage, with a number of excellent harbors and ports, a potentially important inland waterway system, and natural trade routes through mountain barriers to the hinterland. One of these routes—that afforded by the Columbia through the Cascades at water grade—is unique. In much of the area, climatic conditions are highly favorable to industrial development. Climatic conditions and water supplies are also favorable to a considerably higher degree of agricultural exploitation. The region has natural resources—mineral, forest, agricultural, water, power—not yet fully explored and inventoried. Scenic and recreational features of a high order add very appreciably to the resources of the region.

Such combinations of physical conditions have resulted in intensively occupied and rich regions in older parts of the world. It may be assumed that they will have a similar influence here, themselves, within certain limitations imposed by the physical conditions, particularly when the course of world trade is resumed.

The widespread occupation of the Pacific Northwest should not be pictured. Large areas have a serious lack of rainfall, and where water is not available for irrigation, appreciable increase of occupancy of land should not be expected. In other areas shortness of growing season would be a deterrent to further agri-

cultural occupation and use. Also, large areas are—by reason of aridity, poor soil, topography, or by forest cover—unsuitable for intensive occupation and use.

Certain resources are susceptible to depletion and so may bring about declines in activity, wealth, and population. This is especially true of the forest resource. However, if it can be placed upon a sustained-yield basis, it will support the same population and activity as at present, or nearly so. If conservational measures are delayed or neglected the regional economy will suffer the losses experienced by eastern Lake States. This would be a calamity of national as well as regional proportion. Many communities, counties, and districts in the region already have felt this blow and are faced with difficult planning problems. As has been mentioned, certain parts of the economy of the region may be adversely affected through failure to conserve the fisheries or through depletion or loss of market for certain mineral products. The needs for preventive measures against such forces are pressing:

Forest and fishery conservational planning and controls.

Field and industrial exploration and research in the mineral field—location, production and utilization, elimination of waste, and so on.

Economic Conditions

The extractive industries, agriculture, lumbering, and mining, are the dominant elements in the economic pattern of the region. The results are high sensitivity to business fluctuations, and an unfortunately great seasonal variation in labor requirements. The natural resources, especially in hydroelectric power, can be woven into a fabric more resistant to the vicissitudes of the business cycle, and capable of providing fuller employment for the population. If future development is promoted with this design, there can be a higher standard of living, as well as population growth.

Power

Power development has already been emphasized as a new factor of great importance. There is a tremendous reservoir of water power which may be developed in pace with increasing demand. If this power is successfully used—an outcome which can be achieved if the facilities are administered with foresight, intelligence, and courage—one of the results will be employment for many new industrial workers. Another will be the much wider use of power for domestic, farm, commercial, and public purposes. Because of the extent of the resource, there is no reason why both of these effects cannot be had from the outset.

Stimulation of commerce, of transportation, and of urban development will follow, and will, in turn, stimulate power development.

Decentralization of Industry

Large-scale and integrated electric power development tends to permit and encourage a greater degree of decentralization of industry. Long-time trends toward the dispersion of industry out of the highly industrialized Northeast, and also out of congested districts of large cities, are already in operation. These trends have been too slow to be a great factor in themselves in the immediate and rapid development of the Pacific Northwest, but the new power development here will, no doubt, stimulate both of these movements.

Agriculture

Agriculture is of greater importance in the economy of the region than in that of the country as a whole. This has meant that the prolonged depression in agricultural prices has been keenly felt. Wheat raising, an activity of high importance, has been peculiarly subject to the vicissitudes of weather and market. In many districts it has experienced sharp decline, and faces the prospect of further difficulties.

Irrigation is essential to a stabilized agriculture in the greater part of the region. Even in the more humid western areas, supplemental irrigation will greatly increase the population-supporting capacity of the land. When industrial development occurs, a complementary irrigation development is required. In the region (four States) there are approximately 6,000,000 acres which may be included in feasible irrigation projects. These irrigation developments will be required as corollaries not only of industrial development but of Nation-wide programs of retirement of submarginal lands, general land adjustment, and agricultural stabilization.

Urban and Rural Community Development

New farm and industrial populations require fairly uniform increases in the service populations of urban and rural areas. All of these will have marked effects upon the volume and activities of commerce, distribution, transportation, power, and other utilities.

In metropolitan and community growth and development, the activities of county and city planning commissions, in anticipating change and providing against growing pains, will be especially important.

Transportation

The natural transportation routes of the region and their improvement are important physical advantages. Water transportation routes—ocean and inland, with the tributary and parallel land transportation routes—bear most important relationships to the development of the other major resources and of industry, as may be noted from the history of more intensively developed areas of the ancient and modern world. There is no inclination to predict parallels in the Pacific Northwest to the developments along the Rhine, the Hudson-Great Lakes route, or the Mississippi, but there are resemblances of the Columbia to the Hudson-Great Lakes trade route through the eastern mountain ranges, although many essential physical conditions, such as land resources, coal, and iron, are different. The future holds uncertain early prospect of rapid growth of world trade on the Pacific to proportions comparable with those of the Atlantic. Still further, the great pressures of population have ceased, at least for some time to come, so far as America is concerned.

Coordination of all means of transport is a critical need in this region as in the United States as a whole. With new forms coming to the fore it becomes more and more essential that there shall be an effective integration at the points of contact. This implies improvement of terminal facilities and the devising of better means of freight transfer from one mode of transport to another. The highway systems should be used as feeders to rail and water and not as a parallel and competitive system. Whether water or rails shall be regarded as the key means of transport should be determined upon the true economic costs of each in the particular situation. While the railroads have in a number of instances consolidated their facilities, further steps in this direction are necessary.

The ease with which commodities can be moved throughout and to and from the region will have an important bearing upon its advancement. Heretofore, we have not conceived electrical energy as being in the category of a transportable commodity. In view of the importance of the role which power is beginning to have, however, it has become evident that the facilities for its transmission should be organized into a system analogous to that of common carriers.

Commerce

While more economical transportation in the region, particularly for bulk and low-grade freight, should cause an increase in commerce—not only internally but in coastwise, intercoastal, and overseas traffic, yet the extent of the growth of the broader commerce of the region is so involved with world problems that it is difficult to forecast. The dead weight of present world depression and nationalistic policies, retarding the rate of growth of world trade, militates against a very high degree of commercial development in the Northwest.

Mineral Resources

Its mineral resources have been and will continue to be an important factor in the region's development. The exhaustion of certain deposits or the loss of markets may depress the economic life of certain districts or may even adversely affect the entire region. On the whole, however, it is probable that under the influence of power and transportation development, the production and use of minerals generally will be stimulated.

In relation to most other sections of the United States, the full extent of the mineral resources of the Pacific Northwest are not well known. Much systematic exploration of the resources is an urgent need.

Although rates of development and utilization of the mineral resources will depend upon domestic and world market and trade conditions, it is believed that a considerable increase in activity in this field may be anticipated, particularly in the light metal and ferrous alloys.

Fisheries

The fishery resource of the Pacific Northwest is important. The problem is primarily one of conservation of an important natural resource in the face of contemplated river developments and, to some extent, of improper methods of fishing. Nevertheless, there is possibility that the American market for these products can be expanded (the use of fish products is much higher abroad, in Europe and especially in Asia, than in America) and the distribution and marketing methods and facilities improved.

Population Migrations

With the recent slowing down of the natural rate of increase and the cessation of immigration, the prospects of population growth are somewhat reduced. The rate of natural increase for the Pacific Northwest itself is below that of the Nation as a whole. There are, however, prospects of a considerable migration in the movement from submarginal lands to the new tracts which will be opened by irrigation. There is also promise of a very considerable increase of industrial and commercial activity growing directly out of these capital investments which are being made by the Federal Government in behalf of public works. It may be also that the slowing down in population growth after the rapid expansion in utilization of such natural resources as lumber, mining, and agriculture has been a period of pause in which the economy has shaken down into a steadily widening

diversification of employment and wealth production. The attractive power of the region has now been reinforced in a way which should accelerate the rise in standards of living and expand the opportunities for employment.

Résumé of Factors

On the whole, the factors, including the present status of the region, favor a rate of development in excess of the national average. The new factors of power, land, and transportation development are not only certain directly to stimulate growth, but mutually to stimulate each other, making possible, for a time, a geometric progression in rate of progress.

Measures of Growth

Measured in terms of population growth the increase in a generation is likely to be of the order of a million, or 30 percent. With favorable combinations of policies and conditions, the increase may very well be two or three times as great.

Pattern of Growth

The present development pattern of the region is illustrated by the map showing distribution of population (fig. 30). The pattern of a generation hence—on a large scale—is likely to be very much the same as the present except as to density and except as to certain subareas.

The Columbia Basin development, below Grand Coulee, will introduce new dark masses in central Washington.

There will be increased and expanded concentrations in irrigated valleys, such as the Owyhee, Yakima, Snake, Clark Fork, and others.

Under the Montana water conservation program, there will be less of the "pepper and salt" scattering of population in the eastern part of the State and a higher concentration in principal stream valleys and along main lines of communication.

On the smaller scale, other changes in pattern of development may be looked for due to power, industrial, and transportation development. It is to be hoped that that industrial expansion will not be accompanied by higher concentrations in the centers of a small number of large cities but that such development will be distributed in larger metropolitan areas and along waterways and other important arteries of commerce. These changes involve many problems of long-range city, metropolitan district, and rural planning and zoning.

Conclusions and Recommendations

To help bring about the desired general expansion and development at reasonable and rational rates and with the minimum of error, waste, and dislocation, many items of policy and action are desirable and essential. Some of these are:

Establishment of a power administration with authority and functions adequate to research in, and the development of uses and markets for, energy, as well as the development and operation of an interconnected and integrated Federal regional power system. Continuation of Federal aids in financing rural and domestic power systems and equipment.

Continuing and adequate land adjustment and resettlement program under national auspices. In the Pacific Northwest this will involve intensive irrigation development.

Continued effort to adjust agricultural production to a stable economic pattern. In the context of this region this involves the readjustment of farm indebtedness, the encouragement of cooperative marketing, and the displacement of the dry-farming system, in certain areas, by a range-and-irrigated-valley system. The national adjustment policy which is designed for the rationalization of production, for the stabilization of foreign and domestic markets, and for the balancing of price levels is vital to the interests of the Pacific Northwest.

Organization for planning on various levels of government. Cooperative planning is especially essential for the formulation and development of large multipurpose projects and of the auxiliary and collateral projects necessary to integrate these into regional, State, and local economies.

Continuation of Federal participation and aids in public-works construction; also the formulation of Federal policies to cover joint participation in the costs and benefits of public works by Nation, States, and localities, these being limited to those works in which all of these agencies have a definite and direct interest.

Continuation of Federal policies and activities favoring the development of the regional trunk inland waterway system as rapidly as units may be economically justified.

Coordination, under Federal regulation, of transportation facilities, involving the rational and economic use of all means of transport.

Federal, State, and private policies and aids in the conservation of the forest resources, through sustained yield operations and by other means.

Federal policies to further the logical decentralization of industries from congested centers.

National policies favoring the development of coastal and foreign trade, including reexport trade, particularly on the Pacific.

While some of the above suggestions lead beyond the scope of this report and of contemporary regional planning, they are not considered beyond the logical purview of broad national planning. The matters of peculiarly regional nature and of immediate concern are those of regional factors and organization in planning, and of organization for the planning, construction, and operation of public works. These are treated at greater length in the subsequent sections of this report.

STAFF REPORT—SECTION III
DEFINITION AND REGIONALITY OF PACIFIC NORTHWEST OR COLUMBIA REGION

Contents

		Page
1.	Introduction	96
2.	Potential planning problem areas in the Pacific Northwest	98
3.	Homogeneity as a basis for regionality	99
4.	The Columbia River—A unifying bond and a subject for regional planning	101
5.	Other tests of regional homogeneity in the Pacific Northwest	103
6.	Tests of political homogeneity	121
7.	Culture history and regional homogeneity	124
8.	Proposed boundaries for regional planning in the Pacific Northwest	127
9.	Commercial competition as a deterrent to regionalism	130

. . . If Bonneville power is distributed in such manner as to concentrate its benefits to the Portland area and if Grand Coulee energy is sold on terms of peculiar advantage to the people of the Spokane area, broad regionalism will receive a deadly blow and competitive localism spring up with resurgent energy. A wise Federal policy will insist that the benefits of its regional investments shall be spread as widely as is economically possible throughout the region. . . . (*page 131.*)

STAFF REPORT—SECTION III[1]
1. INTRODUCTION

The concept of region seems even more difficult to define than the concept of nation. This is true because the latter is primarily a concern of students of political life while the former is a tool found convenient by the geographer, and the cultural anthropologist as well as by the student of public administration. Each is concerned with a somewhat different purpose both in defining and applying the idea of "regionalism." Yet each must pay some attention to regional data assembled by the other.[2]

Our concern is to discover if there are common planning problems and sufficient social cohesion in the Pacific Northwest to support a regional planning structure transcending existing local and State boundaries; and to suggest the boundaries for planning purposes. As we shall show in another division of this report, those purposes are for sometime likely to be confined chiefly to the problems relating to the conservation and development of natural resources and to physical planning. We are particularly interested in exploring the question of the appropriateness of the present boundaries of the single regional planning commission that now acts for Idaho, Montana, Oregon, and Washington. A region for our purposes is an area, smaller than the nation and larger than a single metropolitan community, which possesses similar natural resources and physical-economic problems which governmental planning may help to solve. There needs to be present a sense of regional community interest strong enough to permit continuous planning and to furnish a decent hearing for planning proposals. The boundaries of the area need to be drawn so as to facilitate the fulfillment of plans by the action of the appropriate legislative and administrative agencies.

We would accept with one qualification the specifications for a planning region set forth in the preliminary report of the committee on regional study[3] which reads as follows:

> . . . First, it should embody those characteristics which are the requisite of true regionality in general, e. g.:
>
> (1) The area should possess the maximum degree of unity, homogeneity, and cohesion.
>
> (2) Its territory should be contiguous and as compact in outline as possible.
>
> (3) It should be large enough to embrace all territory containing generally similar problems and resources. In the United States this appears to vary from perhaps 100,000 to 300,000 square miles.
>
> Second, it should be so constituted as to meet the specific needs of planning, as follows:
>
> (1) It should include all territory containing a major combination of resources, i. e. it should be an economic-natural unit in general terms.
>
> (2) It should include whole problem areas and not partial areas.
>
> (3) It should include a total areal pattern of culture and works and should not cut across such patterns.
>
> (4) It should be so delineated as to conform to existing regional consciousness and sentiments.
>
> (5) It should possess regional identity. No citizen of Iowa would, for example, readily identify himself with a region consisting of a combination of States such as Louisiana, Oklahoma, Iowa, and Missouri; no Californian ever boasted of living within the Twelfth Federal Reserve District; no Washingtonian of being a resident of the Fourth Procurement Zone. On the other hand, people do already identify themselves with certain broad sections or regions of the country such as the South or the Middle West. Even where they do not, certain divisions can be made so as to delineate areas of such uniqueness that such identifications and areal consciousness will be well-nigh impelling.

The qualification we suggest is this: Regional planning boundaries should embrace, wherever possible, whole counties and States. Small fragments of problem areas lying beyond such lines should be cared for by interregional coordinating devices. We discuss these devices below. We wish to emphasize the point, which seems to us to have been undervalued by the committee on regional study, that regional planning areas ought to do as little violence as possible to the integrity of existing State and local governments.[4]

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[1] Prepared by Charles McKinley, consultant (professor of political science, Reed College, Portland), and Blair Stewart, economist (professor of economics, Reed College, Portland).

[2] These 3 different types of regional interest are well and accurately stated by Rupert B. Vance in the following:

"It seems that 3 fields of problems exist to which integrated social science may make a regional approach. (1) Political science is interested in the problem of administrative control and regional autonomy, of government in business and the regional economies of national policy and sectional interests, in the whole question of centralization, federation, and political regionalism. (2) The study of the interaction of man and nature, the erection of the regional economy within the scaffolding of nature and material culture demanda the best efforts of geographers and economists alike. Here regionalism implies the test of human adequacy to master the resources of its region and develop thereon a distinctive and competent culture. (3) In its sociological aspects regionalism derives from the study of society as folk phenomenon. In such case the delimitation of the regional society will be shown by ita folkways and its extra-organizational and extra-legal patterns, regarded not as survivals but as functioning units in an on-going provincial culture. Here the nearest analogy is that of the anthropologists' culture area. The sociological region is regarded as definitive of living, autonomous cultures subsumed within universal western technology. Regional studies aa here envisaged afford backgrounds against which general social theory may be tested."

Human Side of Social Planning. Edited by E. W. Burgess-Herbert Blumer. Region and Regional Planning, by Rupert B. Vance, p. 93.

[3] Regional Factors in National Planning and Development, by John M. Gaus et al., National Resources Committee (pp. 145–146).

[4] This difference of judgment seems to us due to an overemphasis by the committee upon the geographic basis of planning. It is indicated by the statement made on p. 40 of the report which reads: "At this point, the question of the relation of States to regional planning in-

As we have read the reports of the many committees working under the aegis of the State planning boards and the Pacific Northwest Regional Planning Commission, we have been deeply impressed with the stream of recommendations for action by State legislatures, State and Federal administrative officers, and county officials. The fruits of regional planning will not be garnered, in most instances, until plans are expressed in legislative policies and administrative behavior. It therefore seems much wiser to make certain compromises with the details of problem areas (which we think can often be handled by temporary or permanent interregional devices) than to run the real danger of thwarting planning by weakening its strength with State and local legislatures and administrative officers.

We think the situation here is essentially similar to that found in the task of determining boundaries for the integrated government of metropolitan communities. It has been well demonstrated that no two functional services of a metropolitan community exactly coincide. The layers of services needed by such a community—fire protection, police protection, water supply, regulations of gas, electric, and other utilities, health protection, highway, and other public-works facilities—cover areas that are never precisely the same. While suggestion has been made [5] for separate boundaries and governing boards for each function, it has not been accepted as a workable foundation for metropolitan government. Some violence to the functional problem facts must be done in order to save the political structure from confusion and from frustrating both the public and administrator. We think the problem of regional planning boundaries bears a striking resemblance to this smaller metropolitan area problem. In neither case can it be solved with complete satisfaction. It is a matter of weighing the conflicting factors of functional wholeness and precision against the need for legislative and administrative action and the public's need for simplicity of structure. There will be large room for difference of judgment here, since we have only a metaphorical scale with which to do the weighing.

trudes itself. Without attempting to deal directly, one is compelled to formulate a statement which must be one of the major premises of the regional planner, viz, 'Planning problems plainly adhere to geographic peculiarity, whereas planning control adheres to State and other political peculiarity. As a consequence, the areas involved are so different in extent and nature that they cannot be made to coincide.'" We think this an overemphasis upon the geographic factors and if accepted as thus stated may sterilize planning into "daydreaming." We discuss this difference at some length when we analyze the concept of homogeneity.

[5] Notably by William Robson in his Development of Local Government.

STAFF REPORT—SECTION III
2. POTENTIAL PLANNING PROBLEM AREAS IN THE PACIFIC NORTHWEST

The facts of physical geography and of climate have been set forth in other sections of this report, in preceding reports by the State and regional planning commissions, and in the report prepared by the national committee on regional study. It is clear that mountain barriers which run, chiefly, on north-south lines, divide the Pacific Northwest into sections with marked differences in rainfall, temperature, flora, and fauna. There are also many differences due to variations in elevation. Vegetable and animal life tends to travel on north-south lines. Man and fish appear to be the only important contradictions to this biological law.

Partly as a result of these facts, it is tentatively suggested by the committee on regional study that for planning purposes the Pacific Northwest might be divided into three regional areas: (1) A maritime region which would include the timber-covered district in Washington, Oregon, and California, west of the Cascade Mountains; (2) the Columbia Basin region from the Cascades to the Continental Divide and south across the central part of Idaho and along the Blue and Ochoco Mountains in central Oregon; (3) central and southeast Oregon and southern Idaho would be attached to an intermountain region centering at Salt Lake.

We have kept these suggestions in mind and the physiographic and climatic facts upon which they are largely based in our study of question of regional boundaries. In the short time at our disposal to examine this problem it has been impossible to make a definitive study. Nevertheless from such evidence as we have been able to assemble, we have concluded that it would be a mistake to follow the tentative conclusions of the committee, although we shall propose some modifications of the regional boundaries as now constituted.

The analysis of the forest, water, and mineral resources, made in section II of this report, ought to make clear the existence of problem situations involved in their conservation and development. The difficulties and benefits resulting from combined land and water uses have also been clearly sketched. These resources are scattered over portions of each of the four States now in the planning region. A glance at figure 15, which shows the distribution of the coniferous timber stands and the chief logging centers, will make clear that the area west of the Rocky Mountains to the Pacific and north of the southern Oregon line has similar forest problems. The same conclusion must be drawn from the mineral distribution map (see fig. 18) for mineral resources. When the coast mountains have been properly explored (something that has been almost entirely neglected because of the dense undergrowth in the forests that cover that area) there is distinct possibility that the minerals map will show even greater uniformity in the occurrence of those resources. The map of irrigated and potential irrigable areas (fig. 10) indicates the wide distribution of this peculiarly western type of American agriculture. It is true that with the exception of the upper Rogue River valley there is no use of irrigation west of the Cascade Mountains. But the peculiar seasonal distribution of rainfall on the west slope is bringing the problem of summer supplemental irrigation for the "wet" section into the forefront of planning problems.

The east-west ties, of commercial and social intercourse, which are indicated by the studies which we discuss below, call for consideration of physical planning questions that cross the north-south mountain barriers.

There are many subdivisions of the four States which present special problems with which planning must deal. But these will be the task chiefly of county or intercounty planning agencies. The pattern of land use when examined in detail is much more complicated than the tripartite division tentatively suggested by the national committee, But when the larger issues, suited to regional solution, are kept in mind, there is a great deal of homogeneity in the entire great area west of the Continental Divide and north of the south Oregon line.

STAFF REPORT—SECTION III
3. HOMOGENEITY AS A BASIS FOR REGIONALITY

The concept of homogeneity is regarded as primary in all the definitions of a region.[6]

Complete homogeneity does not exist in any region—perhaps never existed. It was more nearly approached before the coming of machinery destroyed the old time-space relationships in which regionalism, in the cultural and economic sense, had flourished. Such back-trends toward economic self-sufficiency as are evident in both inter- and intra-national affairs can never wipe out the web of social contacts that radiate from center to center all over the United States. Always there are radial lines of intercourse from any given population center which thrust out long filaments to distant centers far away in the heart of other regions. We know, for example, that a large part of the dairy products produced in the irrigated valleys of southern Idaho, go directly by autotruck over the improved highways to southern California. On this account the problem of delimiting regions, especially when linked with the question of political agencies through which regional interests must be expressed, defies precision. We are nevertheless required to refine our judgments by aiming at precision, and precision in thinking must start with the meaning of the words we are using as measuring rods. Therefore, in searching for the area or areas to be embraced within the northwest region or regions, it is necessary to analyze and describe the meaning of "homogeneity" as applied to areas for planning.

To the geographer the term seems particularly to mean sameness in character of land and physiographic features. Behind this idea lies the belief that sameness in land characteristics requires similarity of use and cultural habits growing out of land use. The ultimate test of homogeneity, even from the geographer's point of view, is therefore a psychic quality. That quality is expressed in the range of knowledge, skill, and habits required to exploit the land, and to carry on the supplemental economic activities which the area requires, that grow out of the particular types of agriculture, or mining, etc. Men in a region of physical similarities will understand one another, since their way of life, their difficulties and the possible escape from difficulties, will be very much the same. There is a common universe of discourse which is basic to cooperation in economic activity, in government, and in the many social situations requiring the pooling of many minds. So runs the implied thesis of the geographic concept of regionalism, stated rather baldly. Few geographers would put it so baldly today because they are aware that geographic facts do not fully determine human behavior.

Let us notice certain qualifications to this perhaps oversimplified geographic view, which we must keep in mind as we look for determinants of regional boundaries for the Pacific Northwest. Here we find the economist's notion that homogeneity tends to develop where there is intensity of economic intercourse. Constant contact between people living in areas quite distinct in the character of land and its use may develop because of economic specialization. This requires reciprocity between the areas. One furnishes a market for the other. One fabricates the raw materials of the other or acts as a collecting agency for export to distant regions. Banking and credit relations develop out of these economic facts that constitute a nexus of great strength—however irksome at times. The artificial creations in transport and communication break through the natural barriers that in a simpler civilization made regions much more clear cut and closely tied to land use differences. Even nature, the economist may point out, sometimes appears to contradict itself, or at least presents features that tie two otherwise dissimilar areas together. When a great river, like the Columbia, cuts through a mountain barrier, separating two areas that differ greatly in the character of climate and land, it furnishes a tie that links the two together. How much this link will be used depends on social facts, the kind of culture that flourishes in the two areas, and also on further geographic and cultural facts influencing the intensity of economic and social intercourse between these areas, taken together, and other regions of the continent in which they are placed.

It may be that two or more somewhat dissimilar areas are drawn together largely because they are cut off by even greater barriers of mountain mass and desert and distance—with consequent heightening of the costs of economic and social intercourse—from the rest of the continent. They fall into one another's arms not so much from a sense of complete affinity as because of the limitations of opportunity for alternate mating. We need to explore the application of this notion to the Pacific Northwest because the Rocky Mountains and the sparsely settled Great Plains region

[6] See the definitions in sec. F, appendix A, of the Preliminary Report of the Committee on Regional Study.

appear, on superficial examination, to operate as such a barrier to the creation of intense ties between the eastern part of the Pacific Northwest and the eastern half of the United States. Stated in positive terms this barrier seems to have propelled the people between the Cascade and Rocky Mountains toward the Pacific coast for most of their economic and social intercourse.

We have been unable to gather sufficient data on freight shipments and business ties to be entirely certain of this generalization. More analysis of the east and west dividing lines for such business connections needs to be made by the regional and State planning agencies. But such evidence as we have been able to gather inclines us to the view that this hypothesis is largely true, even though the business considerations used by the transcontinental lines for determining their freight rate structure appear to disregard, for pine lumber and tree fruits, these costly facts of mountain mass and distance. If and when the Columbia is made navigable to Lewiston, Idaho, which the Corps of Engineers' reports indicate will become economically feasible, a great part of the bulk freight which now moves east by rail, will probably flow from the west slope of the Rockies down to the ocean terminals of the northwest coast.

A further limitation to the geographic approach to regionalism is suggested by the sociologists. Two dissimilar land areas that are adjacent may be given a feeling of oneness by elements of culture transcending economic facts or overlaying economic ties. Commonness of religious outlook is such a tie. The intellectual influence of metropolitan centers penetrates into a wide hinterland. If the large cities are in one area with their daily press, their institutions of higher learning, medical centers, musical, and artistics institutions, there may yet radiate an influence that penetrates long distance into adjacent but physically dissimilar sister regions.

It should be borne in mind that the test of homogeneity for regional determination, from whatever angle we approach it, is in final analysis the behavior of people. We need therefore to look for similarities of living habits and standards, similarities of knowledges and skills required to solve their economic difficulties (in which the conservation and utilization of natural resources loom very large), unity of religious outlooks, and expressions of feelings of regional unity. As incidental clues to some of these elements we shall look for physical (e. g., transportation) and institutional (e. g., banking) ties that act as canals for an intense social intercourse.

STAFF REPORT—SECTION III
4. THE COLUMBIA RIVER
A UNIFYING BOND AND A SUBJECT FOR REGIONAL PLANNING

The Historical Importance of the Columbia to Concept of "the Pacific Northwest"

Since men tend to identify themselves with a region, partly as the result of remote events, it is of peculiar interest to notice the part played by the Columbia River in the history of the Pacific Northwest. During the latter part of the eighteenth century, explorers interested in the northwestern part of North America were concerned to discover a great western river, said by legend to empty into the Pacific north of the California coast. This concern was shared by Thomas Jefferson, the foremost American statesman of that day interested in exploration. In his numerous attempts, prior to the Lewis and Clark expedition, to promote more ample knowledge of what lay beyond the Rocky Mountains, he gave evidence of a keen desire to discover this great western river for which he had no name.

When in 1791, Captain Gray did discover the river, to which he gave the name of "Columbia", and George Vancouver shortly thereafter explored this river as far east as Washougal, the name "Columbia" became a matter of first importance to the Canadian and American fur traders and to British and American statesmen interested in possessing this section of the North American Continent.

How important this river was at that time is illustrated by the mistake which Alexander McKenzie made in his famous trip in 1793. After crossing the Rocky Mountains, he came down a river which he thought was the Columbia, to an inlet of the Pacific in British Columbia. On the map of this the first trip by any white man across the North American Continent in this latitude, he wrote the name "Columbia" along the river he had traversed, and in the maps which he published he so described it. Actually it was the Fraser River. It was these explorations of Gray, Vancouver, and McKenzie that laid the foundation for the Lewis and Clark expedition of 1803–5, an event which lives in the consciousness of all dwellers in the Pacific Northwest region and is a traditional bond of real force.

The center of competition between the Canadian fur-trading interests and the American fur traders was the Columbia River. The combination of the two chief fur-trading companies of Canada into the Hudson Bay Co. gave the latter ultimate possession in this contest. Astoria, at the mouth of the Columbia, was founded in 1811 by John Jacob Astor as his center of fur operations in the region. It was captured by the British in 1813. Even before that, the Hudson Bay Co. had sent David Thompson to establish trading posts along the upper Columbia and its tributaries and to make his way to the mouth of the river. The union of the British fur interests culminated in the establishment of their western capital by Dr. John McLoughlin at a point just east of the confluence of the Willamette with the Columbia at Fort Vancouver. This strategic spot gave command over the trade of the entire North American area west of the Rocky Mountains, south toward the California line. It was the capital of the whole Pacific Northwest, the legendary "Oregon country", even commanding the trade to Alaska and the Hawaiian Islands. What it meant to the Pacific Northwest during the quarter century after 1824 is told briefly in the following quotation from Joseph Schaefer's History of the Pacific Northwest.

> Vancouver was the clearing house for all the business west of the Rocky Mountains. Here the annual ships from London landed supplies and merchandise, which were placed in warehouses to await the departure of the boat brigades for the interior; here was the great fur house, where the peltries were brought together from scores of smaller forts and trading camps, scattered through a wilderness empire of half a million square miles. They came from St. James, Langley, and Kamloops in the far Northwest; from Umpqua in the south; from Walla Walla, Colville, Spokane, Okanogan, and many other places in the upper portions of the great valley. Hundreds of trappers followed the water courses through the gloomy forests and into the most dangerous fastnesses of the mountains, in order to glean the annual beaver crop for delivery to these substations.

It is interesting to compare the map of the Oregon country as it was defined after the treaty of 1846 (which gave us our present northern national boundary) with the present jurisdiction of the Pacific Northwest Regional Planning Commission and the jurisdiction which is proposed later in this report. This is shown in the maps herein included.[7]

[7] Fig. 36.

The Present Bond Created by the Columbia River System

As we have indicated above, the barriers to east and west movement of men and things created by the mountain masses in the Pacific Northwest are contradicted by the Columbia River. First used as the artery of transportation and communication by the sloops and bateaux of the fur traders, it was soon paralleled by trails that followed the easy gradients its clear rushing waters had cut through the mountains. Over these—particularly the "Old Oregon Trail"—came an increasing stream of covered wagons from "The States." The second generation of pioneers witnessed fleets of steamboats, supplemented at portages by wagons and horse-drawn railroads, carrying their freight of food, gold, and miners, as far inland as Lake Pend Oreille. That traffic lives now only in memory. Today deep-draft ocean steamers make their way up the Columbia some 105 miles inland to Portland and Vancouver. When the Bonneville Dam is completed and the dredging implied by its great locks is finished, there will be opportunity for ocean ships to ascend the river as far as The Dalles. Plans for future use of the river for navigation (set forth in an earlier section of this report) envisage an inland water-borne commerce going as far east as Lewiston, Idaho. Whether or not these prospects are realized, the Columbia gorge has furnished an avenue for two great east-west transcontinental railway lines and for two transcontinental motor highways. It is also the principal east-west route in the Pacific Northwest for air transport.

These are important ties, as we shall show a little later in this report, which bind the areas east and west of the Cascades together. But, in addition to the foregoing, there is a peculiar importance which the waters of the Columbia play in the economy of the Pacific Northwest. Its bearing upon the generation of electric energy has been amply discussed in other sections of this report. The importance of this resource to the future of the entire area should stand out clearly from that discussion.

There is another function which is not so readily understood by people living in the Middle West and the East; namely, the use of the waters of this great river system for irrigation. The prospect of a permanently stable economy in Idaho and in much of western Montana is largely dependent upon the use of water from the tributaries of the Columbia River system. Without these waters these two States cannot thrive. To a less degree the same is true of important sections of eastern Washington and eastern Oregon. Yet the use of the waters of this river system for irrigation plays an important part in its use for power, transportation, fisheries, and flood control. It may be that river systems in the Middle West and East, as is maintained by the committee on regional study, constitute a poor basis for regional planning, but that statement needs drastic modification before it has relevance to the Columbia system and the Pacific Northwest.

STAFF REPORT—SECTION III
5. OTHER TESTS OF REGIONAL HOMOGENEITY IN THE PACIFIC NORTHWEST

We have endeavored to run a series of "tests" of regional homogeneity by examining a few key factors which would give a clue to the economic similarities or dissimilarities, to political cleavages or cohesion, and to the general cultural likenesses and differences. We have been limited both by the shortness of time and by difficulty of access to important types of fact. Nevertheless we feel that the data presented in the maps, graphs, and tables which accompany this section of our report and the discussion which follows throw much light upon this moot question. First, let us present the data on agricultural and forest land use.

Agricultural (Including Forest) Land Use in the Pacific Northwest

In the semifinal draft of the report of the National Committee on Regional Study (referred to above), it is affirmed that the area west of the Cascades is physically so different from the rest of the Pacific Northwest as to have very little community of interest with the Columbia Basin area. Its major assets are said to be forests, fisheries, scenery, and commerce and industry. Agriculture is left out, as apparently of slight importance. In contrast the Columbia Basin area is said to possess a definitely rural point of view, save for one city and such slight metropolitan connections as are provided by the port services of the coast cities. Its activities are said to be primarily wheat and fruit raising.

The implication of that analysis is that the areas east and west of the Cascade Mountains should be placed in different regions because of marked differences in land use. The contrast is between forests, fisheries, scenic and recreational areas, and commercial and industrial sites on the west, and agricultural areas on the east. A careful examination of land use in the area, however, tends to blur this contrast.

Agriculture, it is true, is the most important activity east of the mountains, but this is also true for considerable areas between the Cascades and the ocean. The accompanying map [8] shows the percentage of population classified as rural-farm in the census of 1930. The largest area which is predominantly agricultural is in eastern Montana. Southern and central Idaho also is an area where the population is largely found on farms. The mining and lumbering regions of Idaho and Montana, together with the industrial activities in Spokane County, Wash., constitute an area with a relatively small farming population. There is a clear contrast between eastern and western Washington, although seven counties east of the mountains have less than 40 percent rural-farm populations. The picture is quite different in Oregon, where there is no striking difference between the areas on opposite sides of the Cascades.

The comparison of the eastern and western portions of Oregon and Washington is carried further in table XII. Western Oregon contains 30.8 percent of the area of the State, produces 53.5 percent of the value of farm products, and contains 71.7 percent of the rural farm population. The high percentage of rural farm population on the west side as compared with the value of product is probably explained by the more intensive agriculture, and the greater proportion of part-time farms. The evidence in general indicates that eastern and western Oregon are of approximately equal agricultural importance.

TABLE XII.—*Area, value of farm products in 1929, and rural-farm population in 1930 for eastern and western Oregon and Washington*

	Area		Value of farm products		Rural-farm population	
	Square miles	Per-cent	Dollars	Per-cent	Number	Per-cent
Eastern Oregon	66,147	69.2	63,774,080	46.5	64,836	28.3
Western Oregon	29,460	30.8	73,235,006	53.5	156,709	71.7
Total	95,607	100.0	137,009,086	100.0	221,545	100.0
Eastern Washington	42,305	63.3	129,428,823	65.5	144,750	48.2
Western Washington	24,531	36.7	68,315,749	34.5	155,393	51.8
Total	66,836	100.0	197,744,572	100.0	300,143	100.0

Source: United States census of 1930.

In Washington there is a greater contrast between the productiveness of the two sections than in Oregon, although the value of farm products for western Washington is roughly proportional to the area. If the values for the three counties of Yakima, Whitman, and Chelan are subtracted from the value of farm products for eastern Washington the remainder is approximately equal to the value for western Washing

[8] Fig. 37.

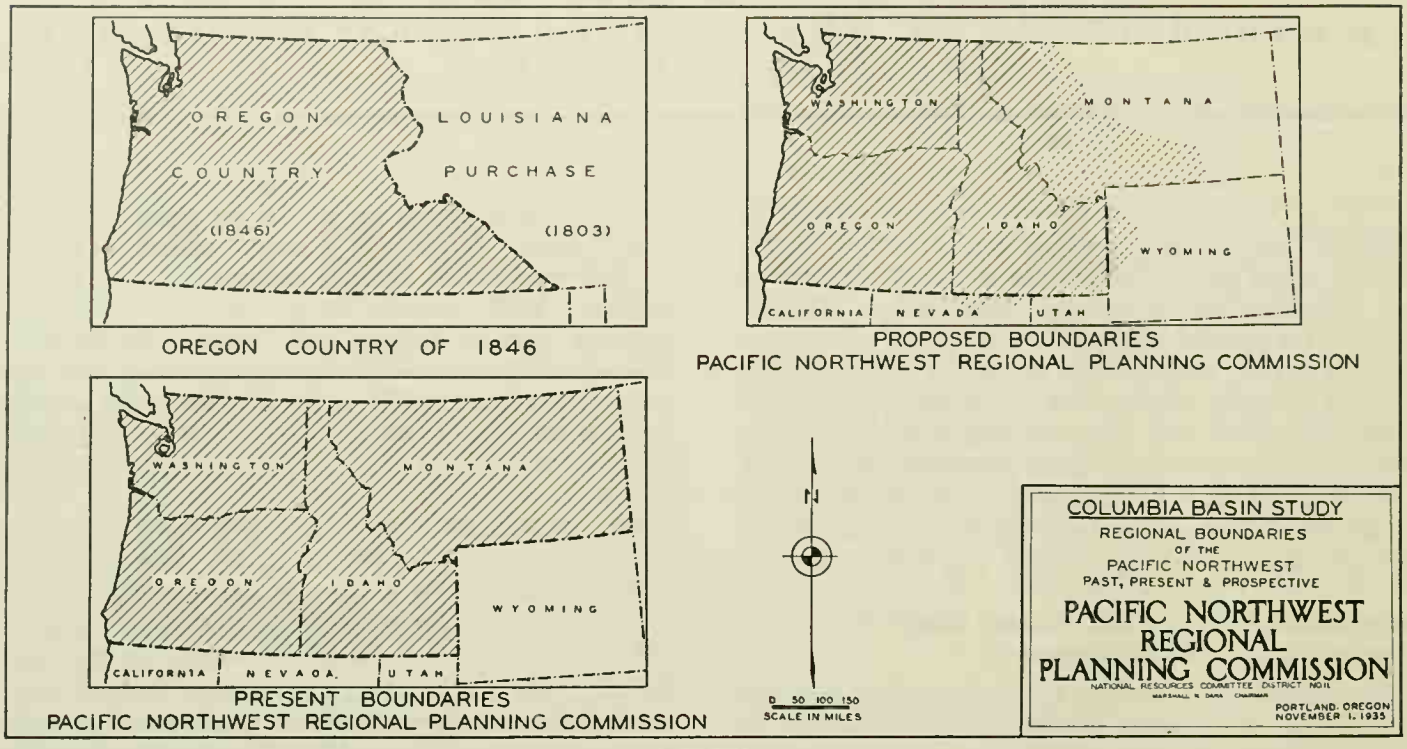

FIGURE 36.

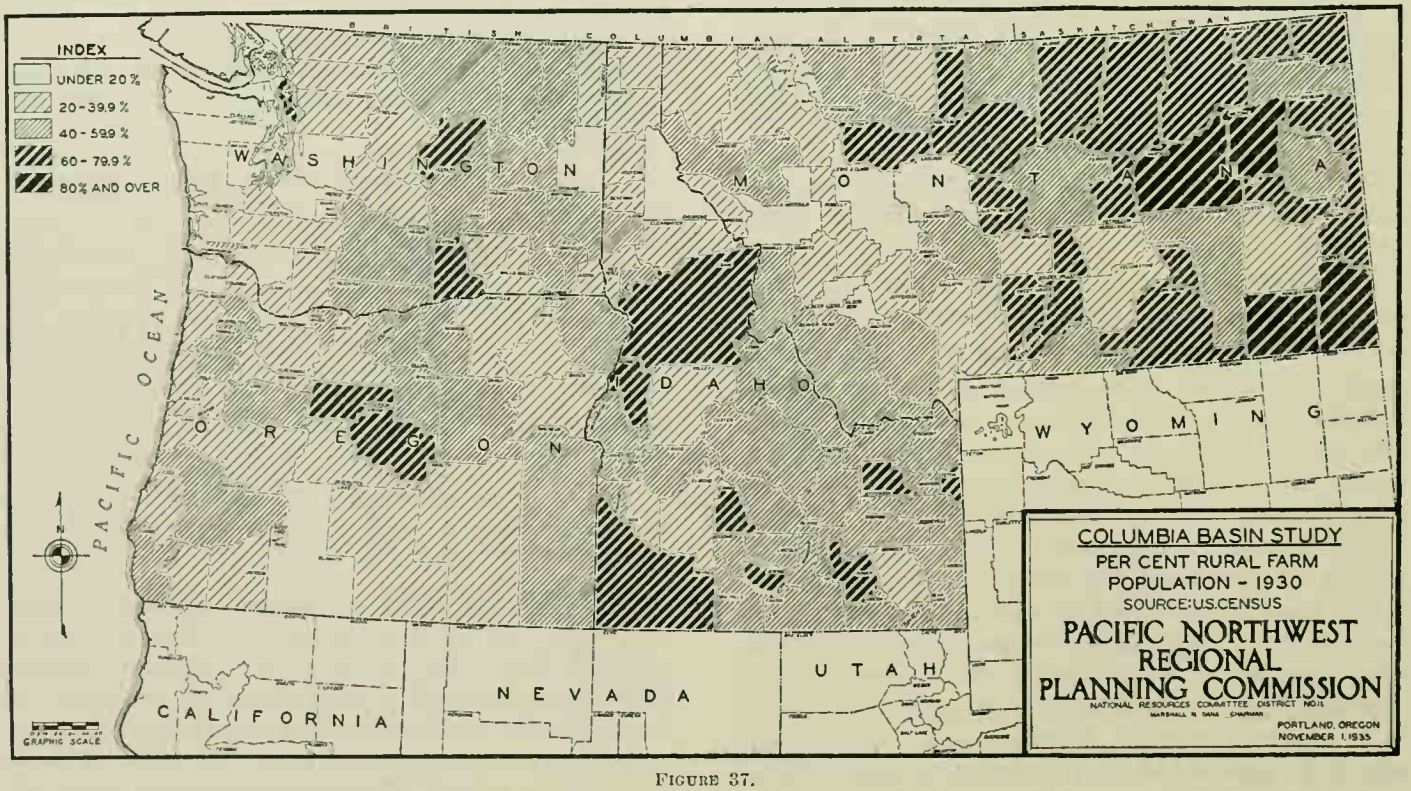

FIGURE 37.

ton. The somewhat greater farm population to the west than to the east of the mountains is again explicable largely in terms of more intensive and part-time farming.

The predominant land uses in Oregon and Washingington are agriculture and lumbering. The economic pattern is largely made up of variations in the proportions in which these two activities are engaged, plus commercial and shipping ganglia too restricted in area to be distinguished as regions. In Idaho and Montana, mining is added to lumbering and agriculture to form a trinity of basic economic activities.

Next to agriculture, lumbering is the most important economic activity in the Pacific Northwest. Some notion of the wide distribution of that activity is indicated in table XIII. This shows the present stand of commercial timber and the average annual wood use in different parts of the region. Because of the view expressed by the national committee on regional study, which is known to be shared by many others, we have arranged this table so as to show these data separately for the area in the "rainy" belt west of the Cascades and the section between the Cascades and the Rocky Mountains. In terms of total stand, western Oregon, with 300 billion board feet, is the most important area. Western Washington is second with about 245 billion board feet. The other areas are eastern Oregon 92 billion, Idaho 82 billion, Montana 45 billion, and eastern Washington 31 billion. In terms of the existing population, however, the stand of timber is greatest in eastern Oregon with 504,000 board feet per capita. Western Oregon has a per capita stand of 390,000 and western Washington 222,000 board feet. In comparison with the existing population, the stand of timber in Idaho (184,000 board feet) is not far below western Washington. Montana with 84,000 board feet per capita and eastern Washington with 67,000 are the least important in this respect. The Montana per-capita figures are reduced by the fact that two-thirds of the area of the State lies east of the Continental Divide and therefore outside the timber belt.

In terms of the existing economic pattern, the actual cut of timber is of greater importance than the stand. In this respect western Washington is clearly the outstanding area, with a cut nearly twice that of western Oregon. Eastern Oregon follows and then eastern Washington, Idaho, and Montana. More significant than the total volume of cut in determining the economic homogeneity of the area is the per capita cut of timber. In the 5 years, 1925 to 1929, western Washington led with 6,000 board feet per capita. Eastern Oregon was second with 5.4 thousand and western Oregon third with a per capita cut of 4.3 thousand board feet. In the period 1930 to 1933 the largest per capita wood use (cut) was found in eastern Oregon, with 3.8 thousand board feet per capita. Western Washington was second in importance with a wood use of 3.2 thousand board feet, while western Oregon had a cut of 2.4 thousand board feet per capita.

TABLE XIII.—*Population 1930, timber resources 1935, and average annual cut east and west of Cascade Mountains in the Pacific Northwest*

	Population 1930	Standing timber		Average annual wood use			
				1925–29		1930–33	
		Total (million board feet)	Per capita (thousand board feet)	Total (million board feet)	Per capita (thousand board feet)	Total (million board feet)	Per capita (thousand board feet)
EAST							
Oregon	182,973	92,212	504	987	5.4	701	3.8
Washington	459,497	31,016	67	706	1.5	492	1.1
Idaho	445,032	81,790	184	903	2.0	478	1.1
Montana	537,606	45,174	84	386	.7	178	.3
Total	1,625,108	250,192	154	2,982	1.8	1,849	1.1
WEST							
Oregon	770,813	300,793	390	3,290	4.3	1,843	2.4
Washington	1,103,899	245,255	222	6,601	6.0	3,559	3.2
Total	1,874,712	546,048	291	9,891	5.3	5,402	2.9
Grand total	3,499,820	796,240	228	12,873	3.6	7,251	2.0

Source: U. S. Census of 1930 and United States Forest Service.

From the above figures it may be seen that lumber is combined with agriculture in somewhat similar proportions in eastern Oregon and western Oregon and Washington and in smaller proportions in Idaho, eastern Washington, and Montana. The problems of forest protection, and particularly of sustained yield, are even more acute and important to the people of eastern Oregon, particularly in the arid central section tentatively suggested for inclusion in the Intermountain Basin planning region, than they are for western Oregon. The chief city of central Oregon (east), Bend, is very largely dependent on the lumbering operations of the surrounding Pondosa pine forests, and it is the view of informed persons that its life will terminate in the not very distant future unless sustained-yield forestry can be established. The county seat of Wallowa County, in the very northeast corner of Oregon, is today a financial wreck, denuded of nearly half the population it had 10 years ago, because sustained lumber practice was not followed. This is true despite the fact that it lies in the heart of a fertile irrigated valley and is surrounded by uplands

given over to dry wheat farming and sheep and cattle range.

These cases are not isolated. They are cited to make the meaning of the figures in the tables a little more human, and to indicate the existence of crucial planning problems that are similar for the arid and wet halves of the State.

It is true that lumber operations are carried on with some difference in the eastern Oregon forests. Instead of spruce and fir, which predominate west of the Cascades, pine dominates the eastern slope of the Cascades, in the Blue Mountains, the Wallowas, the Ochocos, and the forests in the very southeast part of Oregon near Burns. Logging is carried on under somewhat different climatic conditions than on the west side. There is less rain, more cold weather, little underbrush, smaller yield to the acre. In milling, pine calls for somewhat different handling because of size and texture. Yet so far as the problems of conservation are concerned the similarities of problems are much more important than the differences. The habits and sympathies of the loggers, the mill workers, and the operators are more closely akin to those of their fellows working in the fir forests toward the ocean than they are to the wheat ranchers, or the dairymen who till the soil in the nearby farming districts. If homogeneity is in final analysis a psychic quality growing out of similarity of everyday experience, there is much reason to believe that the wide incidence of lumbering in the Pacific Northwest is a regional tie of real magnitude.

There seems to be no clear ground for breaking the Pacific Northwest into a number of regions based on clear distinctions between agriculture and industry, even though there are certain subregions in which one or the other of these two types of activity predominates. There are only two important districts which are so predominantly agricultural that they may be recognized as distinctly farming areas. These are southeastern Idaho and eastern Montana.

If the four States cannot be broken into regions on an industry versus agriculture basis, is it possible that the types of farming activity—either by products or techniques—differ in such a way as to delimit distinct regions? At first glance the striking difference in precipitation on the east and west sides of the Cascade Mountains would seem to indicate distinct agricultural regions. A more careful study of types of farming areas, however, reveals that there are rainfall variations east of the mountains quite as important in determining agricultural activity as the variation between east and west, and that other physical factors, such as soil quality, slope, and existing cover, are often quite as important as rainfall. East of the mountains, agricultural methods may be classed as irrigation, dry farming, and grazing. West of the mountains, irrigation is of negligible but growing importance; the dry summers lead to a limited form of dry farming; and the forest cover limits the extent of grazing. When we turn to a more detailed examination of methods and products, however, we find that agricultural activity is so diverse that many distinct agricultural districts appear, with other differences of equal, if not greater importance than those between the eastern and western portions of the region. This is shown by the studies of types of farming areas, which have recently been made in Idaho, Oregon, and Washington. The areas determined by these studies are listed and their land use characteristics indicated in the following summaries:

Types of Farming Areas

IDAHO

Area	*Type of farming*
Northern Idaho cut-over areas.	Mountainous area, farming confined to river valleys and more gentle cut-over upland slopes; nonirrigated except for fruit area near Coeur d'Alene; general, dairy and self-sufficient farms most prevalent.[1]
Northern Idaho cash-grain area.	Timbered area containing general and self-sufficing farms; small fruit district near Lewiston; balance of land in cash-grain farms.
Idaho tree fruit area.....	Irrigated orchard lands in mountain valleys; general and dairy farms also of some importance.
Central Idaho mountain area.	Limited areas of agricultural land in foothills of high range country on national forests; stock ranches; animal-specialty and general farms prevail.
Lower Snake River Valley..	Low precipitation, mild climate and irrigated lands; dairy farming of first importance, some general farms and animal-specialty farms, with poultry a significant side-line enterprise.
Central Snake River Valley.	Irrigated area of low precipitation; majority are crop-specialty farms and some general farms; greatest emphasis placed on cash-crop production, particularly field beans, sugar beets, and potatoes produced in rotation with alfalfa.
Upper Snake River Valley.	An irrigated area similar to Central Snake River Valley but with much greater emphasis on potato production; crop-specialty farms predominate, with potatoes, sugar beets, and seed peas most important, in the order named.
Southwestern diversified area.	Caribou County largely stock ranches; balance of area devoted to cash-grain, general, and animal-specialty farms.

OREGON [2]

Coast dairy farms.....	Region west of the Coast Range; specialized dairy farming for cheese production the outstanding type of farming; specialized poultry farming for egg production important and increasing.
Willamette Valley diversified farming.	The most important agricultural area in the State, containing 54 percent of the farms; agriculture highly diversified; over 50 productive farm enterprises normally profitable; general farming predominates, usually centering around dairying or farm sheep, with a good deal of cash-grain and legume-seed production; many specialized fruit farms (prunes, cherries, pears, apples), poultry farms, truck farms (celery, onions, cannery crops), walnut and filbert farms; heaviest strawberry producing region in the United States.

[1] Neil W. Johnson and Harold A. Vogel. Types of Farming in Idaho, pt. II, The Type of Farming Areas: University of Idaho Agricultural Experiment Station Bulletin No. 208 (June 1934) pp. 72–74.

[2] H. D. Scudder and E. B. Hurd, Major Types of Farming in Oregon, by Regions (summary from unpublished manuscript).

TYPES OF FARMING AREAS—Continued
OREGON—continued

Area	*Type of farming*
Columbia Basin wheat region.	Specialized large scale wheat farming outstanding type; irrigation projects are devoted to general arming, with dairying or range stock hay production (alfalfa) as major enterprises; specialized fruit farming is outstanding in the irrigated Hood River Valley, famous for its apples and pears; nonirrigated northern Wasco County (cherries, apples, grapes); and the Milton-Freewater irrigated section (fresh prunes).
Southern Oregon fruit and diversified farming.	Specialized fruit farming is outstanding in this region; pears in the Rogue River and prunes in the Umpqua; general farming, with dairying and sheep, is a major type in the smaller tributary valleys and in the Umpqua Valley. intensive crops, such as tomatoes, melons, broccoli, grapes, strawberries, cherries, apples .walnuts, add to the diversity; turkey production is a major enterprise in the Umpqua Valley, and commercial egg production is expanding.
Blue Mountain stock and crop farming.	Range beef cattle or sheep ranching outstanding for region; general farming on irrigated lands with range stock feeding, dairying and cash grain leading; transportation cost against grain makes Wallowa County heaviest hog producer in State.
Central Oregon stock and crop farming.	Range sheep and cattle production utilizes all available grazing on the public domain and national forests and stretches the resources of the ranches for wintering on wild hay, alfalfa, and grain hay; the region is outstanding in wild-hay production from winter flood waters; the irrigation project lands are devoted largely to diversified farming, with dairying, potatoes, legume seeds as major enterprises.
WASHINGTON [3]	
Puget Sound region	Essentially a poultry, dairy, and berry area.
Balance of western Washington.	Dairying the dominant farming type with the exception of an intensive poultry area in Lewis County, a cranberry area in Pacific County, and a prune producing center in Clark County.
Okanogan area	Intensive tree fruit production in valleys of Okanogan and Methow Rivers; nonirrigated table lands devoted to wheat production when precipitation permits; upper mountain valleys raise hay and produce range cattle and sheep.
Wenatchee-Chelan area	Devoted almost entirely to apple production.
Kittitas Valley	A region of diversified farming, with dairying the main type, and hay and grains the main crops grown; some potatoes; some fruits.
Upper Yakima Valley	Primarily an area devoted to apple and pear production.
Lower Yakima Valley	An irrigated bench devoted to pears, peaches, apricots, and sweet cherries.
Klickitat area	Goldendale wheat area similar in many respects to Palouse conditions, with somewhat more emphasis on side-line enterprises of beef cattle and hogs; White Salmon area mainly producing apples, with small dairy area in Trout Lake-Guler region to the north.
Walla Walla Valley	Small truck farms and orchards (largely prunes); westward extension large farms raising alfalfa and pasture for dairy cattle; surrounded by nonirrigated cash-grain farms.
Big Bend area	Majority of farms wholly devoted to wheat production, with little livestock other than work animals and these rapidly replaced by tractor equipment.
Palouse area	The eastern half of the Washington wheat belt; field peas and beans grown in limited portions of this area as well as some dry land alfalfa.
Spokane Valley	Tree fruits for out-of-State shipment and truck and berry crops for local demand are main commodities; a limited number of poultry and dairy farms are found in this area.

[3] Neil W. Johnson and Rex E. Willard, Nature and Distribution of Types of Farming in Washington, Types of Farming Series, part III. State College of Washington, Agricultural Experiment Station Bulletin, No. 301, July 1934, pp. 64.

TYPES OF FARMING AREAS—Continued
WASHINGTON—continued

Area	*Type of farming*
Ferry, Stevens, and Pend Oreille Counties.	Small tree fruit farms most prominent along the Columbia River between Ferry and Stevens Counties; Pend Oreille and northern Stevens Counties largely devoted to general farming; Colville Valley contains largest area of good land, and dairying is the main enterprise.

From the point of view of regional unity, the type of product raised is of greater importance than the variation of farming techniques used. It is worthwhile, therefore, to examine the geographical distribution of the production of a number of agricultural commodities, to see whether they give evidence of a north-south dividing line in the agricultural culture pattern.[9] The following dot maps for Oregon and Washington were made for similar studies, but the value of the dots, and in some cases the criterion used, varies. If carefully read, however, they give a good picture of the distribution of the different products.

The most important single agricultural product in the Pacific Northwest is wheat. The distribution of wheat land in Oregon and Washington is shown in charts 1 and 2 (fig. 38). The comparison of wheat acreage between Oregon and Washington from these maps should hardly be attempted since a dot in Washington represents 1,000 acres, while a dot in Oregon represents only 500 acres. Also the dots on the Oregon map are apparently from three to four times as large as those on the Washington map. The total wheat crop of Washington is roughly twice that of Oregon.

Wheat production in Washington is largely concentrated in the southeast portion. The dividing line seems not to be the Cascades—which may be approximately indicated as the western boundaries of Okanogan, Whelan, Kittitas, Yakima, and Klickitat Counties—but roughly the 10-inch annual precipitation contour line which lies approximately half way from the mountains to the eastern border of the State.

In Oregon wheat production is fairly well concentrated in the northern tier of counties east of the mountains, including the wheat districts of Jefferson and Union Counties. For the rest of eastern Oregon wheat growing is of less importance than it is in the Willamette Valley.

Hay is the second most important agricultural crop in value in the Pacific Northwest. Unfortunately a map showing all hay acreage is not available for Washington. The map for Oregon (chart 3, fig. 39), how-

[9] We are indebted to E. B. Hurd, of the Bureau of Agricultural Economics, United States Department of Agriculture, and H. D. Scudder, of the Oregon Experiment Station, Oregon State College, for permission to reproduce the Oregon maps, and to Rex E. Willard, State College of Washington, and Neil W. Johnson, Bureau of Agricultural Economics, United States Department of Agriculture, for permission to reproduce the Washington maps.

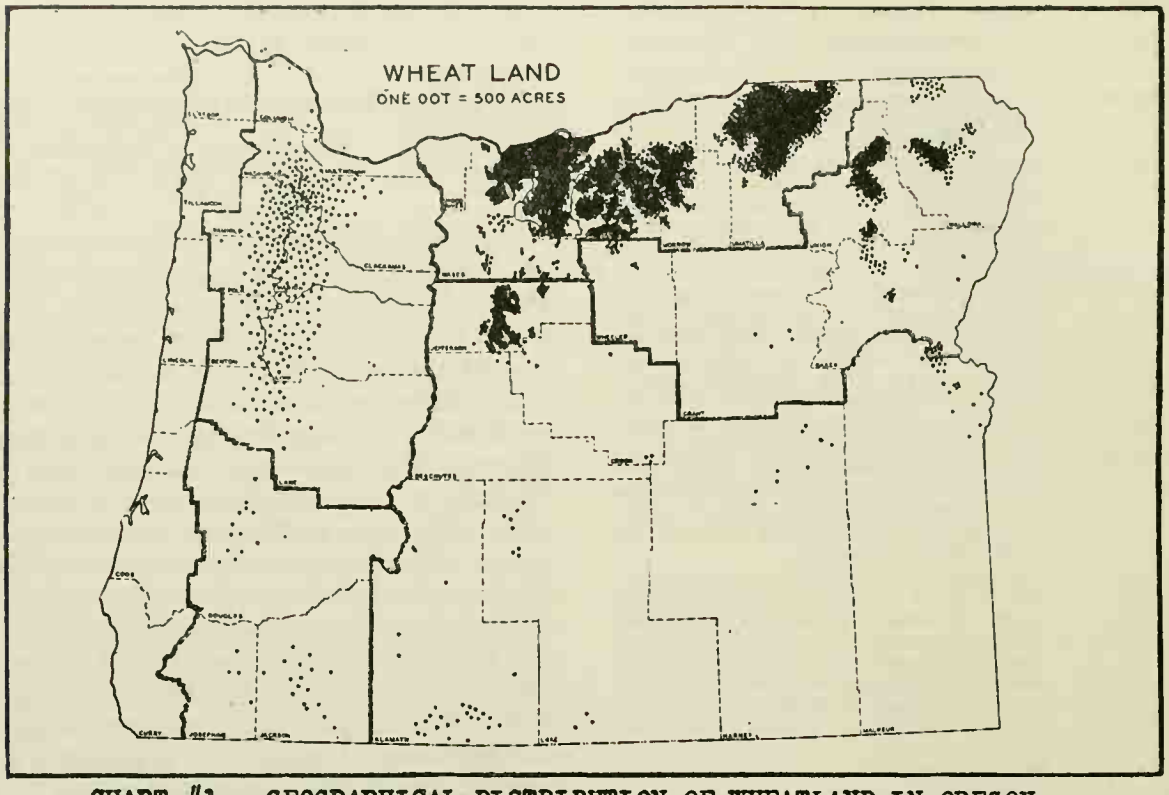

CHART #1. GEOGRAPHICAL DISTRIBUTION OF WHEATLAND IN OREGON 1929. Source: Oregon State Agricultural College

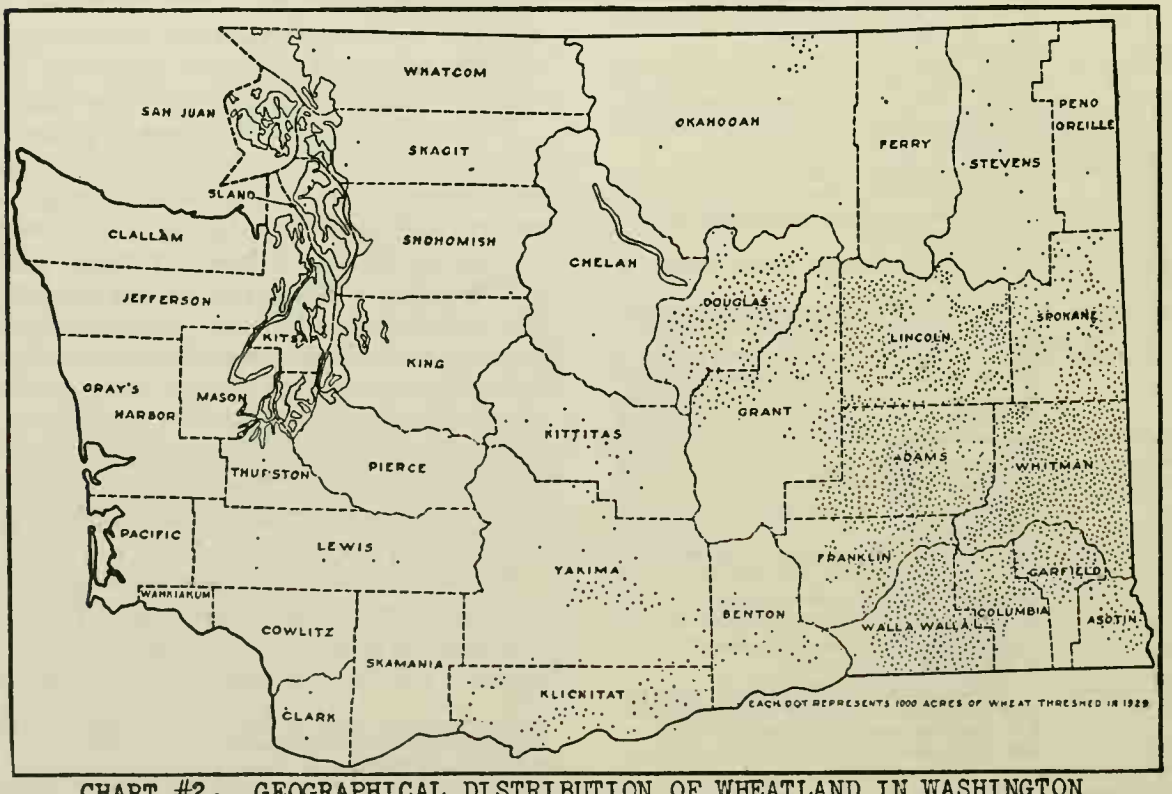

CHART #2. GEOGRAPHICAL DISTRIBUTION OF WHEATLAND IN WASHINGTON 1929. Source: Washington State Agricultural College

FIGURE 38.

ever, shows how widely distributed hay production is in the latter State. Alfalfa production, on the other hand, although widely dispersed in Oregon, shows a tendency to cluster in the irrigated sections in the eastern part of the State (see charts 4 and 5, figs. 39 and 40. Please note differences in size and value of dots).

Milk production comes next in importance for Pacific Northwest agriculture. As is shown in charts 6 and 7 (figs. 40 and 41), this activity is widely dispersed in both Oregon and Washington. The smaller dots on the Washington map represent 250 dairy cows each, as compared with 100 cows for the larger dots on the Oregon map. When the sparseness of the population east of the mountains is taken into consideration. dairying is seen to be remarkably uniform element in the agricultural pattern.

Tree fruit production in Washington and Oregon is shown on charts 8 to 12 (figs. 41 to 43), inclusive. The most important tree fruit-producing areas are in the Yakima and Wenatchee Valleys in Washington, although there are very important producing centers in Hood and Rogue River Valleys in Oregon. Clark County, Wash., and the Willamette Valley in Oregon are important prune-producing districts.

Satisfactory maps showing production of cattle and sheep are not available, but the charts 13 and 14 (fig. 44), indicating the geographic distribution of swine production in Washington and Oregon, show that this particular livestock-raising activity is widely scattered in the two States.

In summary it may be said that while there are areas predominantly industrial in character in various parts of the Pacific Northwest, they are not sufficiently free from very important agricultural activities to be separated for regional planning purposes into nonagricultural districts. Agriculture is of importance throughout the Pacific Northwest, and while there is some difference in the importance of agriculture east and west of the Cascade Mountains in Washington, this is not true for Oregon. There are, also, some contrasts in agricultural techniques east and west of the Cascade Mountains, but they seem less important indices of the presence or absence of homogeneity than the very widespread distribution of the cultivation of a large number of the more important agricultural products.[10]

Other Economic Ties Within the Pacific Northwest

We have been unable to secure reliable and full data on direct-trade relationships. As a consequence we are showing only three kinds of information that bear on this question of economic ties. The first indicates the movement of all kinds of motor vehicles over the highway system, the second gives important banking ties, and the third shows the territories served by branches of two large mail-order houses.

The consideration of economic and commercial lines of intercourse in the Pacific Northwest should be based upon an understanding of population distribution in the region since the important factor is the closeness of human contacts. Rather small movements may indicate very close relationships for a sparse population.

We have already explained the uneven distribution of population. But these facts must be kept in mind or the maps which follow will not have meaning. It is particularly important to recall the fact that over half the population is west of the Cascades and concentrated even there in the two small areas of the Puget Sound and Willamette Valleys. In the following maps, north and south lines in western Oregon and Washington will normally be much heavier than the lines indicating an equal intensity of economic and cultural relationships in other parts of the region.

The following map (fig. 47) shows the density of motor-vehicle traffic and population in the Pacific Northwest in 1930. Insofar as motor-vehicle movement represents the contacts between members of the region, it may be seen that these contacts become attenuated near the State line in southern Oregon. The only highway carrying a daily average traffic in excess of 500 cars is Federal Highway No. 99. The lightest traffic on this route seems to be just south of the California-Oregon boundary, where it amounted to approximately 800 vehicles per day in 1930. Similar attenuation is found near the State line in eastern Oregon. Considering the low-population density east of the mountains, the east and west movements along the Columbia River and over the Snoqualmie and Chinook Passes in Washington seem of as great, if not more significance than the north and south traffic west of the mountains. The volume of traffic declines rather considerably in the area west of Spokane, but is even lighter east of Spokane along the routes leading into Montana.

In terms of traffic density, southeastern Idaho seems to be a relatively self-contained area, although there is some building up of traffic on Federal Highway No. 91 leading in the direction of Salt Lake City.

It seems appropriate at this point to interject a comment which is based on a question of regional cohesion raised by the national committee. In its report that body rightly calls attention to a secessionist movement in eastern Washington and northern Idaho some years ago. It might have truthfully added two

[10] The variations in the length of growing season, which are shown in fig. 14, are clues to the complexity of the agricultural pattern.

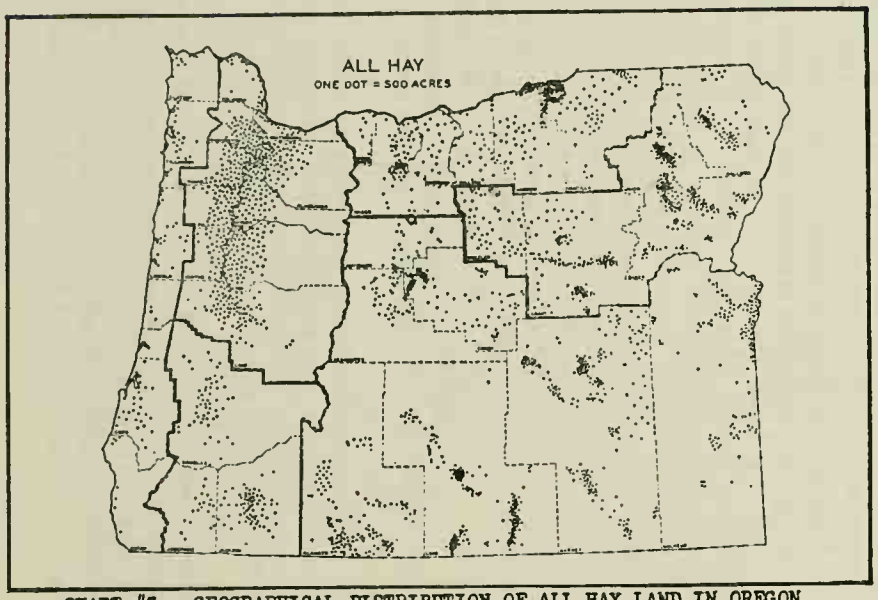

CHART #3. GEOGRAPHICAL DISTRIBUTION OF ALL HAY LAND IN OREGON 1929. Source: Oregon State Agricultural College

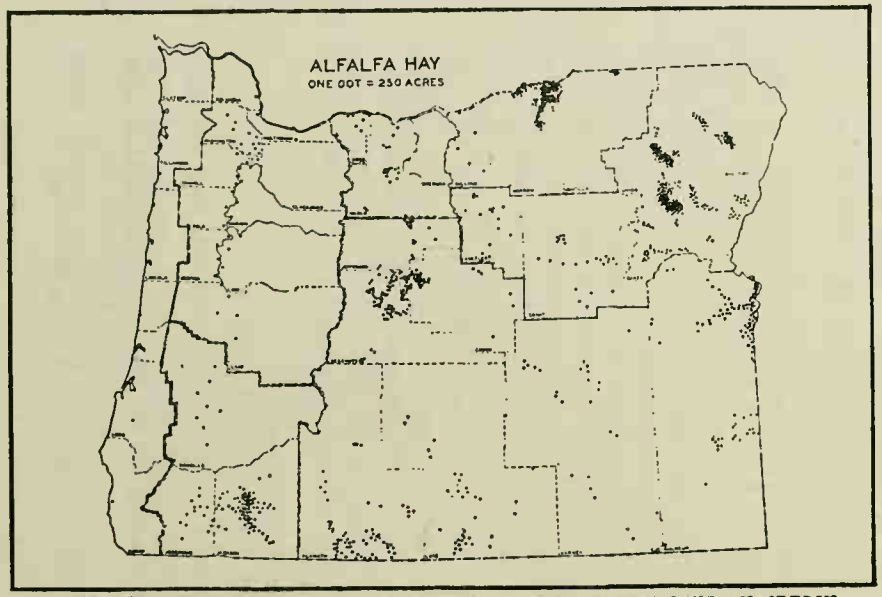

CHART #4. GEOGRAPHICAL DISTRIBUTION OF ALFALFA HAY LAND IN OREGON 1929. Source: Oregon State Agricultural College

FIGURE 39.

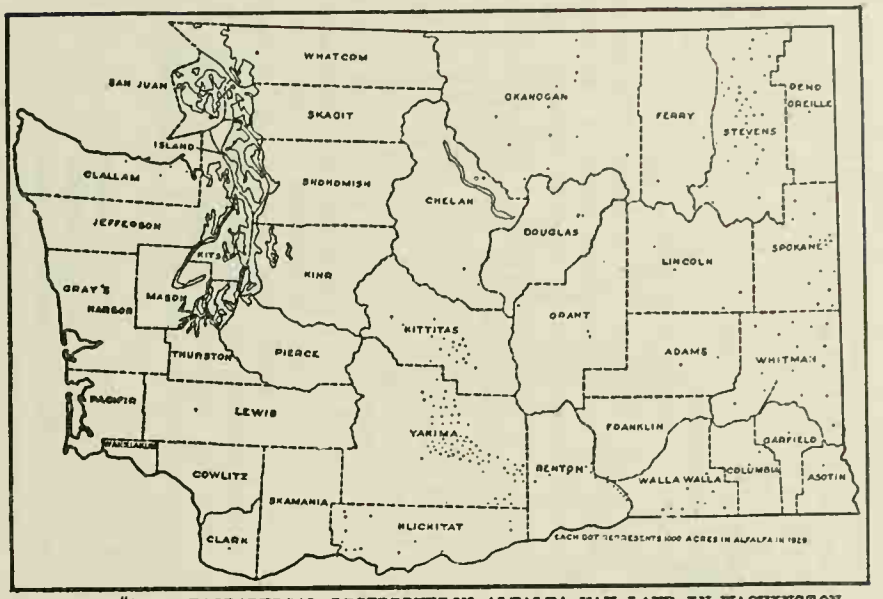

CHART #5. GEOGRAPHICAL DISTRIBUTION ALFALFA HAY LAND IN WASHINGTON 1929. Source: Washington State Agricultural College

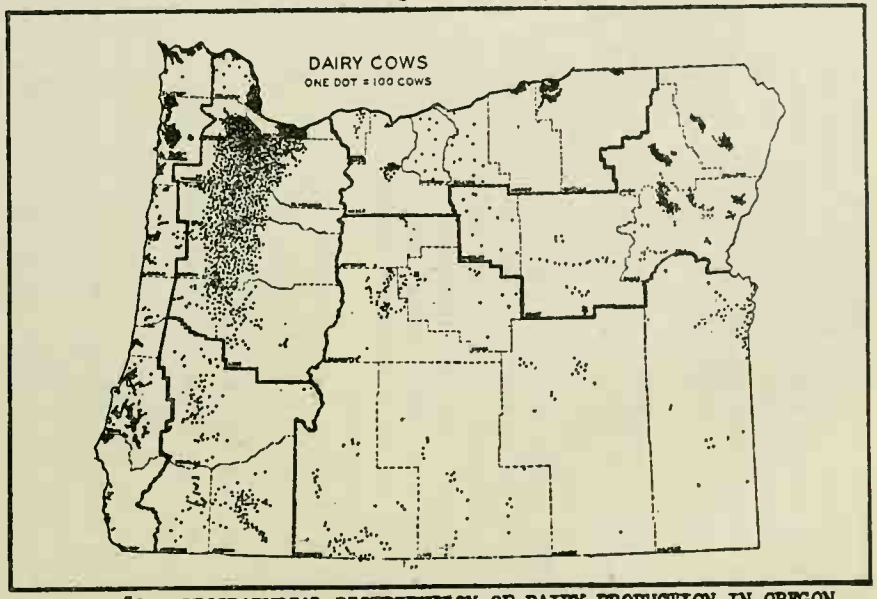

CHART #6. GEOGRAPHICAL DISTRIBUTION OF DAIRY PRODUCTION IN OREGON 1930. Source: Oregon State Agricultural College

FIGURE 40.

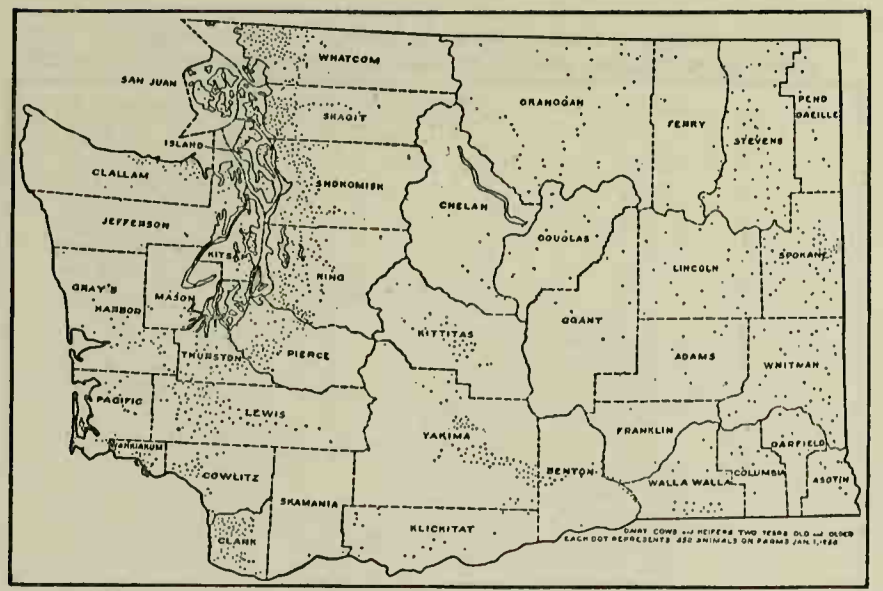

CHART #7. GEOGRAPHICAL DISTRIBUTION OF DAIRY PRODUCTION IN WASHINGTON 1930. Source: Washington State Agricultural College

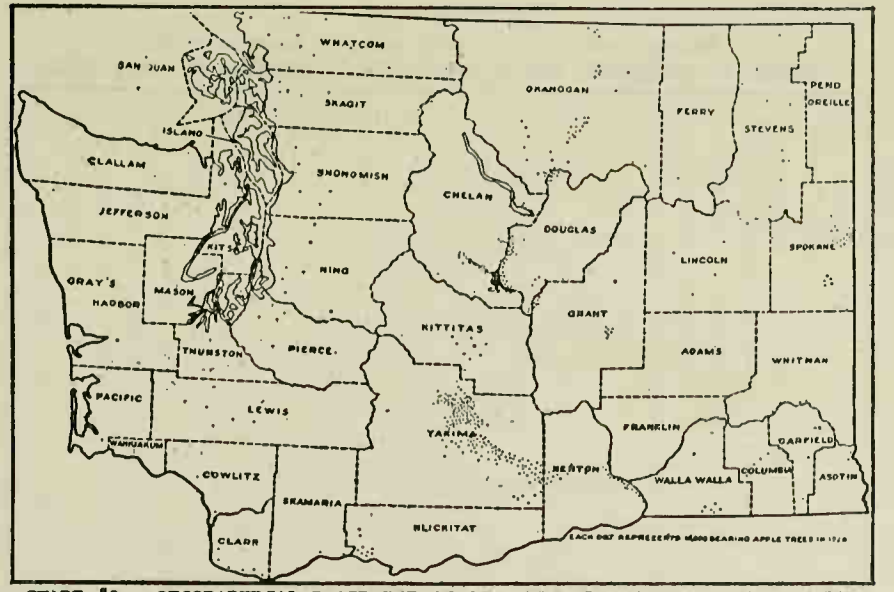

CHART #9. GEOGRAPHICAL DISTRIBUTION OF APPLE PRODUCTION IN WASHINGTON 1929. Source: Washington State Agricultural College

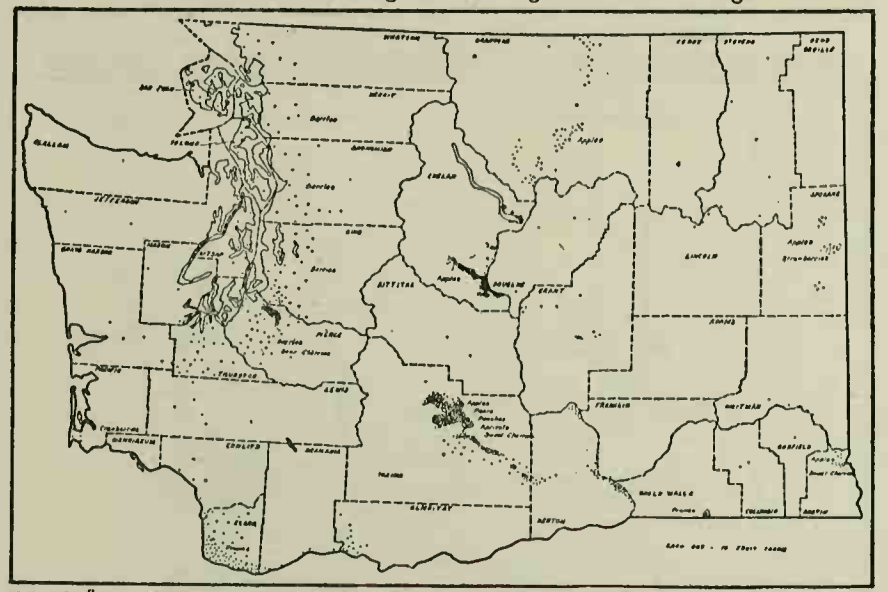

CHART #8. APPROXIMATE NUMBER AND LOCATIONS OF FRUIT FARMS IN WASHINGTON 1929. Source: Washington State Agricultural College

FIGURE 41.

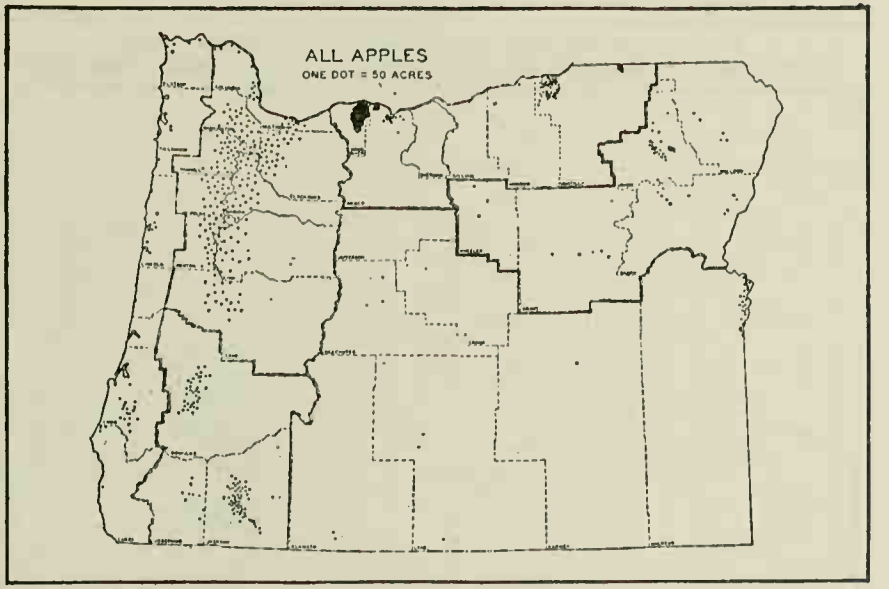

CHART #10. GEOGRAPHICAL DISTRIBUTION OF APPLE PRODUCTION IN OREGON 1929. Source: Oregon State Agricultural College

FIGURE 42.

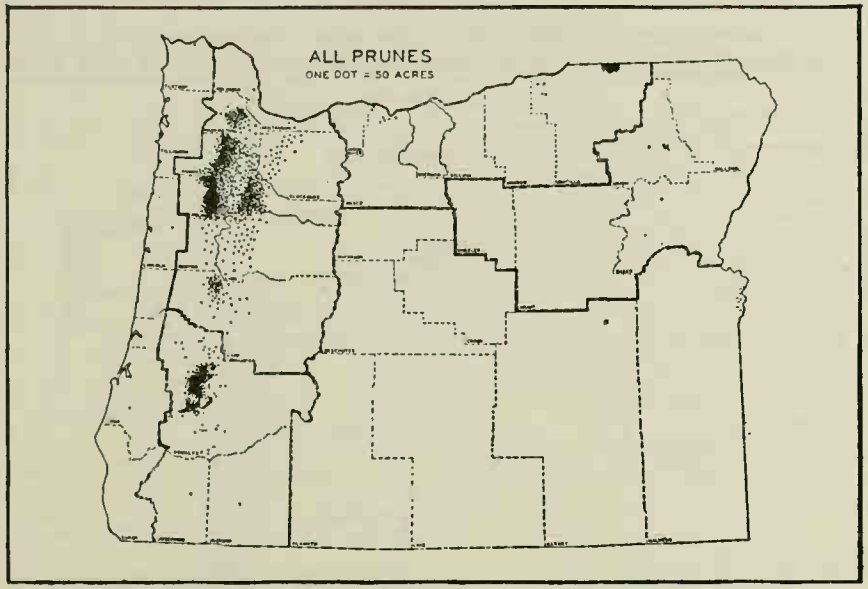

CHART #11. GEOGRAPHICAL DISTRIBUTION OF PRUNE PRODUCTION IN OREGON 1929. Source: Oregon State Agricultural College

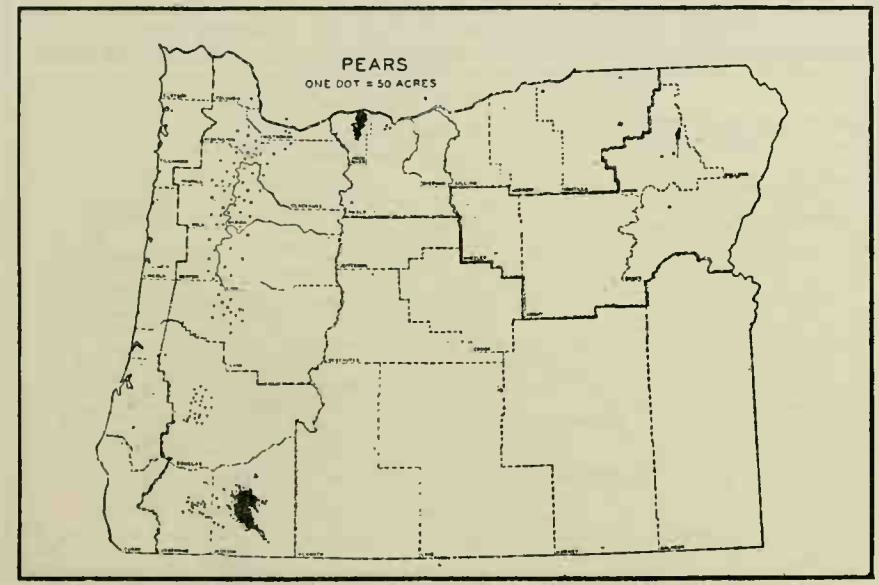

CHART #12. GEOGRAPHICAL DISTRIBUTION OF PEAR PRODUCTION IN OREGON 1929. Source: Oregon State Agricultural College

FIGURE 43.

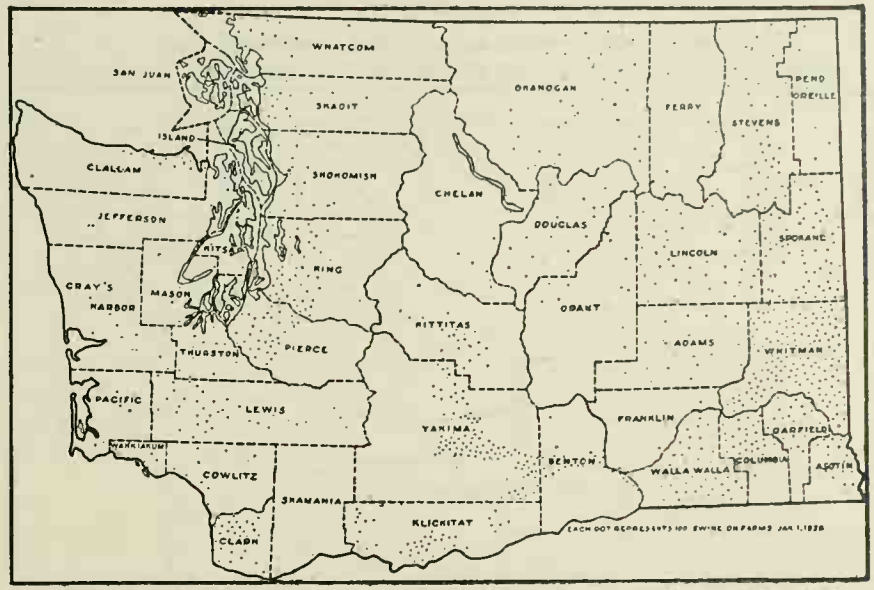

CHART #13. GEOGRAPHICAL DISTRIBUTION OF HOG PRODUCTION IN WASHINGTON 1930. Source: Washington State Agricultural College

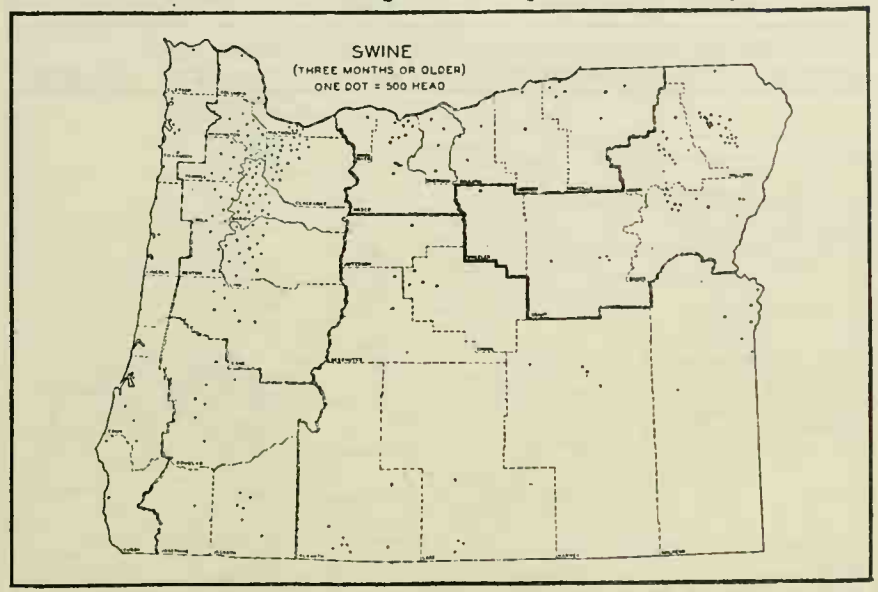

CHART #14. GEOGRAPHICAL DISTRIBUTION OF HOG PRODUCTION IN OREGON 1930. Source: Oregon State Agricultural College

FIGURE 44.

other similar movements in southeast Oregon and in southern Oregon. The former area wanted to join Idaho; the latter wished to wed with California. What we desire to point out is that all three of these alienations of affection have come to an end. The fact that these flirtations have ceased is ascribed by informed residents of the disaffected areas to the coming of the automobile and good roads. The Eugene-Klamath Falls branch of the Southern Pacific has supplemented the motor connection. Time was when it was much easier for a resident of Klamath Falls to go to San Francisco than to Portland. The resident of Burns had to travel north to the Columbia River, down to Portland, and then south to Salem in order to get to the State capital. It has only been in the last 20 years that it has been possible for the Lakeview folk to get to western Oregon without going out of the State. Formerly they had to go to Doyle, Calif. (not far from Reno, Nev.), then to Marysville in the Sacramento Valley, and then north into western Oregon.

That situation has come to an end, as the traffic flow maps indicate. The natural topographic facts have been changed by the money and engineering skill which have laced east and west sides together with high-speed highways. The story of this development throws a flood of light on man's ability to alter the effect of nature. In Washington there are five passes which, when the highway structure is completed, will cement the east-west union. Snoqualmie Pass has been improved with an easy grade, high-speed motor way for over 20 years; Chinook Pass carries the Natches Highway around the north side of Mt. Rainier into the north Yakima Valley-southeast Washington country; on the south side of Rainier is White Pass, through which an improved highway is nearly completed which will tie the Chehalis-Centralia-Cowlitz River country directly to Yakima. There are two other gaps in the Cascades ready for highway development whenever the population demands require them. These are Stevens Pass, which will permit a close link between Everett and Wenatchee, and the route of the Cascade Wagon Road, which will bind the Bellingham country with the beautiful Okanogan region. The Evergreen Highway is Washington's motor road through the Columbia Gorge.

In Oregon the spectacular Columbia River Highway, built about 1914, was soon followed by the McKenzie Pass Highway (which gave the central Oregon country its first direct connection with the Willamette Valley), the Ashland-Klamath Falls and the Medford-Crater Lake-Klamath Valley connections. More recently the Wapinitia Pass has been used for a paved short-cut between Portland and central Oregon. Eugene has also been tied more closely to Klamath Falls by a road which follows the Middle Fork of the Willamette and crosses the Cascades near Odell Lake, using the same gap that the Southern Pacific Railway follows in its recent connection between the same two districts. This last road is not fully improved. When so developed it will be readily maintained for all-year service. (The McKenzie Pass is closed part of the year on account of its height and heavy snow fall during the winter.) Another summer highway, fully improved, will soon be completed through the Santiam Pass, which will give the heavily populated central section of the Willamette Valley closer connection with central and eastern Oregon. A glance at the present highway map will make clear the connections between all parts of this State which the automobile has evoked.

An important key to the extent of commercial relationships is the correspondent bank relationships in the region. Business relations in general are probably fairly well summarized in the extent to which country banks maintain balances in various metropolitan centers. It is not possible to determine the actual flow of funds between different points nor the exact amount of balances with banks in a particular center without an elaborate investigation. It is believed, however, that the accompanying maps, which show the deposits of country banks having correspondent relations with the indicated centers, give a fairly accurate picture of the closeness of banking ties.

The first map (fig. 45) shows the deposits of country banks in the Pacific Northwest having correspondents in the designated cities within the region. Correspondent bank relationships between reserve cities are not shown on the map as they would tend to obscure the picture. The reserve cities are Seattle, Portland, Spokane, and Helena. All banks not located in these points are classified as country banks.

The influence of Portland banks is very slight south of the Oregon line, and, with the exception of correspondent relationships with banks in Boise, is not important in Idaho. Both Seattle and Portland have important connections with eastern Oregon and Washington, while the influence of Spokane is generally confined to the counties on the eastern edge of the State of Washington and northern Idaho and Montana. The relationships between banks in Butte and those of Portland and Seattle are probably more akin to the relationsnips between reserve cities than to the reserve city country-bank type of connection. The chief reserve center in Montana is Helena, which drains heavily from the eastern part of the State. A branch of the Minneapolis Federal Reserve Bank is located in Helena.

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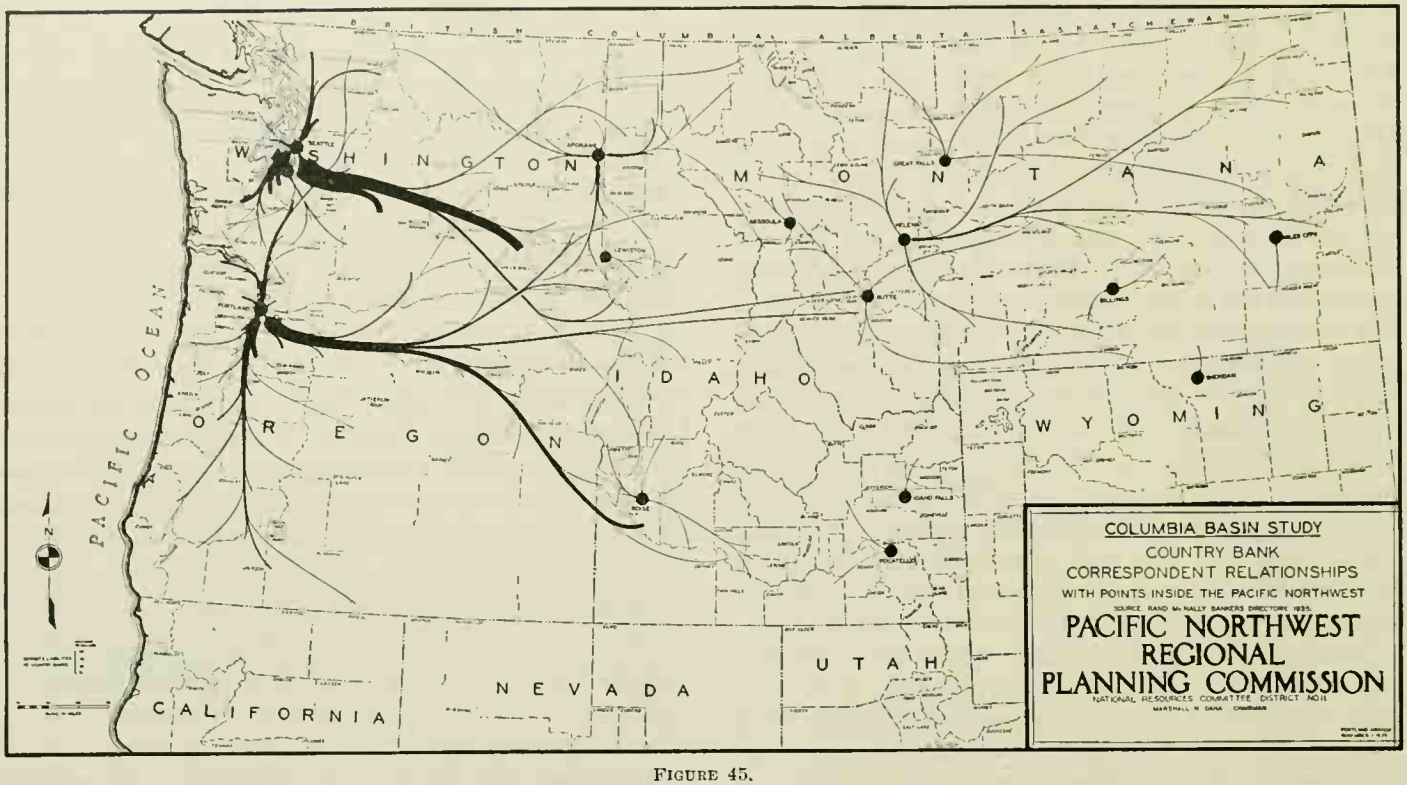


FIGURE 45.

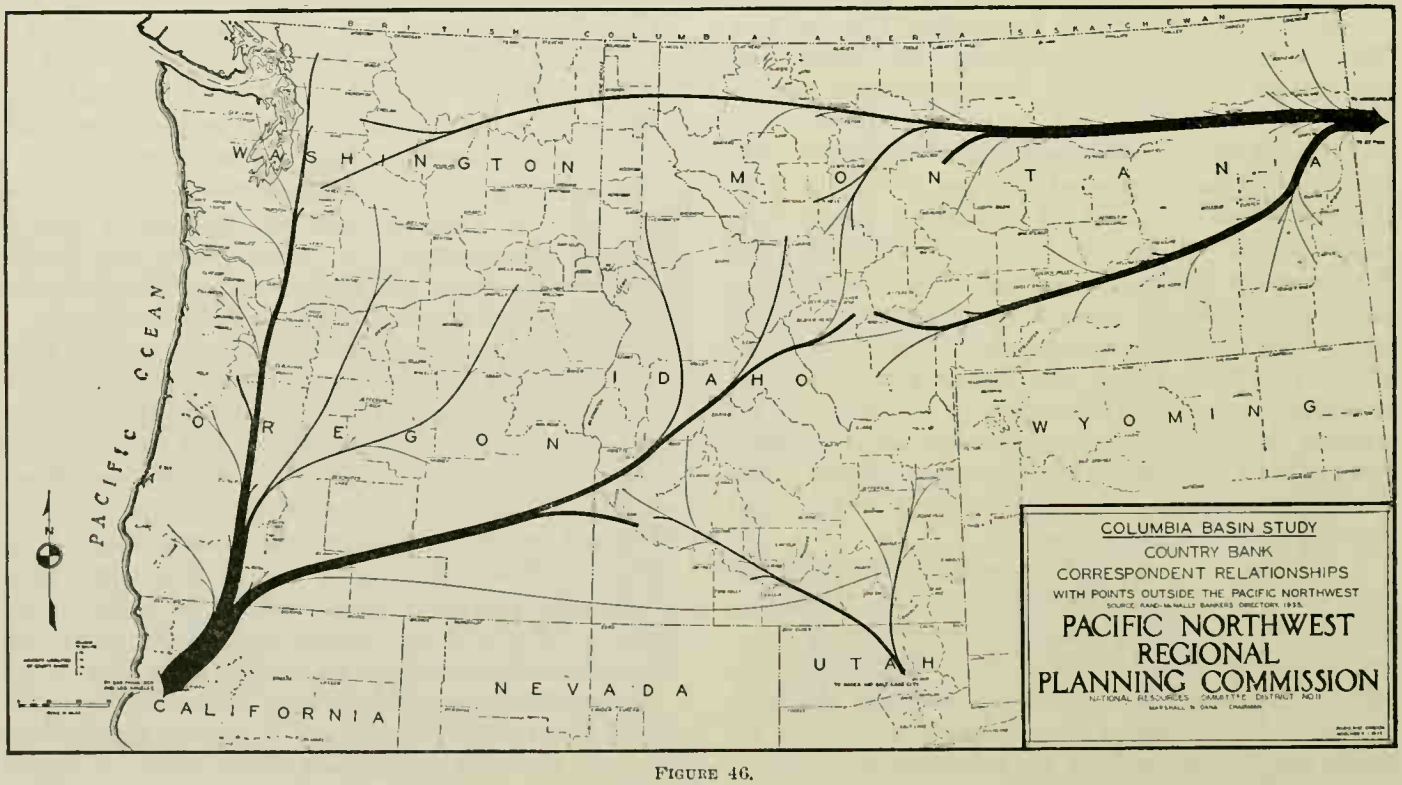


FIGURE 46.

The relationships of country banks with correspondents outside of the Pacific Northwest are shown on the second map (fig. 46), and should be interpreted in the light of Federal Reserve District boundaries. Idaho, Oregon, and Washington are in the San Francisco Federal Reserve District, and branches of this Federal Reserve bank are located in Portland, Seattle, Spokane, and Salt Lake City. These relationships flow in three directions. San Francisco and Los Angeles draw heavily from western Oregon and Washington, Idaho, and western Montana, but not so strongly from eastern Oregon and Washington and hardly at all from southeastern Idaho or eastern Montana. Southeastern Idaho generally has banking connections with Ogden or Salt Lake City.

Montana is in the Minneapolis Federal Reserve District and, except for a few counties on the western border, banking connections are with Minneapolis and St. Paul. The correspondent relationships shown between Pierce and Snohomish Counties in Washington and Minneapolis and St. Paul probably reflect the connection of certain business interests in Tacoma and Everett and do not indicate diffused business relationships.

Another indication of the commercial relationships of the region is the areas served by the branches of mail-order houses located in Portland and Seattle. These are shown on the accompanying map (fig. 48). Montgomery Ward & Co., with its branch in Portland, serves all of Oregon and Washington, and all of Idaho, except the southeast tip. It serves Montana west of the Continental Divide. Sears, Roebuck & Co. has allotted its Seattle branch a territory, including all of Idaho, Oregon, and Washington, and all of the mountainous district of western Montana. The area used by these two great mail-order houses coincides almost exactly with that which is proposed for regional planning purposes.

Evidence of Cultural Relationships in the Pacific Northwest

A number of tests of cultural homogeneity might be made were time afforded. We had hoped to present, in addition to what follows, an analysis of the influence of the State institutions of higher learning as measured by the geographical distribution of their present students and their alumni. But the facts assembled are not sufficiently complete to warrant presentation at this time. This seemed important, partly because of the education cleavage in the present region alleged by the national committee on regional study. Without presuming to judge the situation without full data, it does seem warranted to point out in passing that probably the most acute feuds between institutions of higher learning have occurred in the State of Oregon, where the principal rivals live almost within a stone's throw of one another. Real as has been the antagonism between the east and west institutions in Washington, it is pale when matched against the fratricidal strife which has reigned among the educational institutions of the Willamette Valley for over two generations.

One factor of considerable importance in indicating the cultural homogeneity of the region is the variation in religious affiliation. The membership of selected religious denominations in 1926 may be seen on the accompanying map (fig. 49). The major evangelical denominations, Baptist, Congregational, Lutheran, Methodist, Episcopal, and Presbyterian, are combined and shown in the first bar on the left in each county, designated by a *P*. The membership of the Roman Catholic Church is shown in the second bar and indicated by the letter *C*. Episcopalians are shown third, and Latter Day Saints fourth, the last denomination being represented by an *M*. The three most populous counties are shown on the left of the map and in some of the more sparsely settled areas a magnified scale is added to facilitate a comparison of the relative importance of the different denominations.

The population of the Pacific Northwest exhibits some striking variations in religious affiliations. Western Oregon, and particularly the Willamette Valley, is predominantly Protestant. This is also true toward the northern part of eastern Oregon. In the grazing counties in the southeastern section of the State, the Catholic influence predominates. This is probably due to the considerable number of Irish and Basques engaged in sheep raising.

The balance between Protestants and Catholics is more even in the State of Washington than in Oregon, but here also Protestants predominate. In northern and central Idaho, the Catholic influence is again strong. This is also true of the Montana counties along the Canadian border; and in the mining sections Catholics outnumber the Protestants many times. The agricultural region of eastern Montana is in general Protestant.

One of the most striking features of the map is the overwhelming majority of Latter Day Saints in the southeastern part of Idaho. While the Mormon influence may be traced as far west and north as Union County, Oreg., it is most striking in the group of counties adjacent to Wyoming and Utah. This fact is indicative of the strong cultural tie which undoubtedly exists between this district and Salt Lake City.

Another test of cultural as well as commercial relationships is to be found in the number of long-distance telephone conversations between different points. The

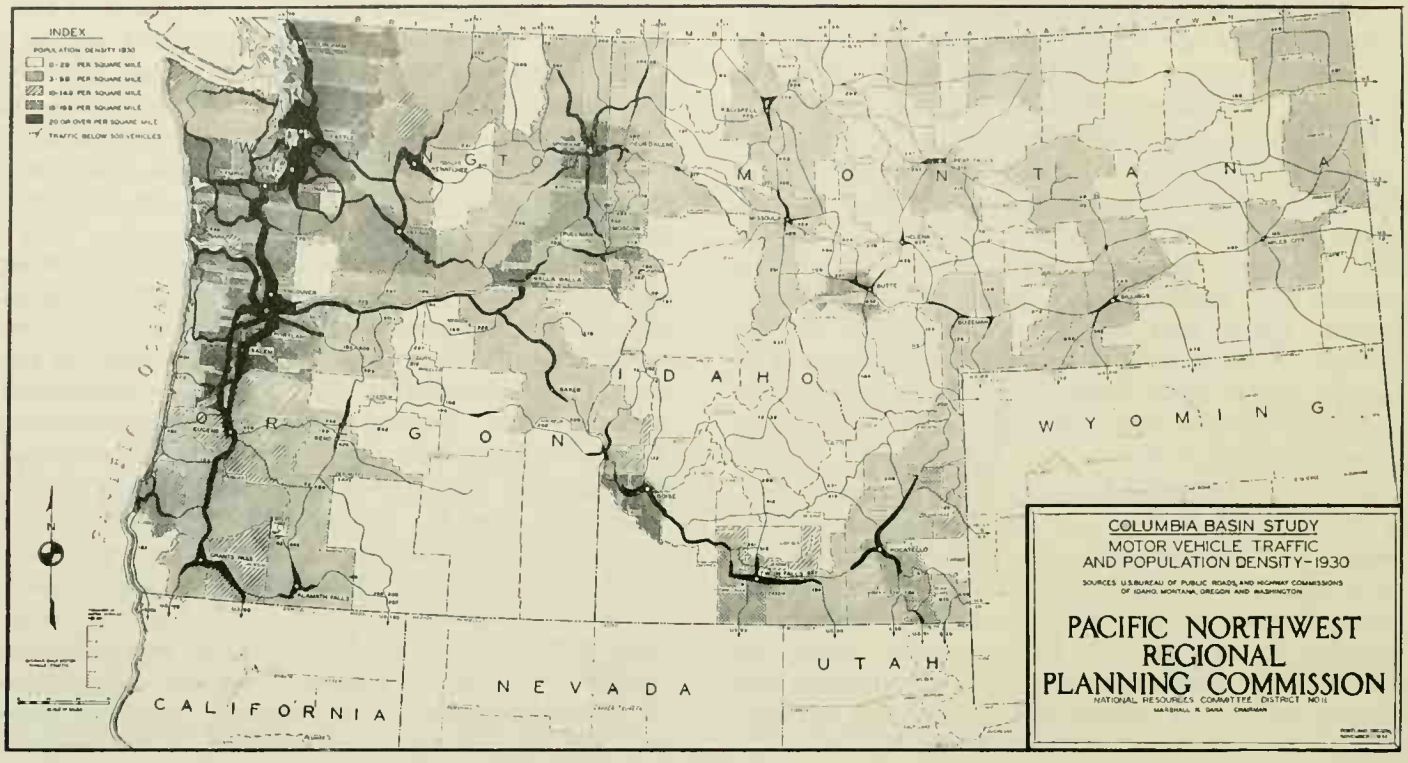


FIGURE 47.

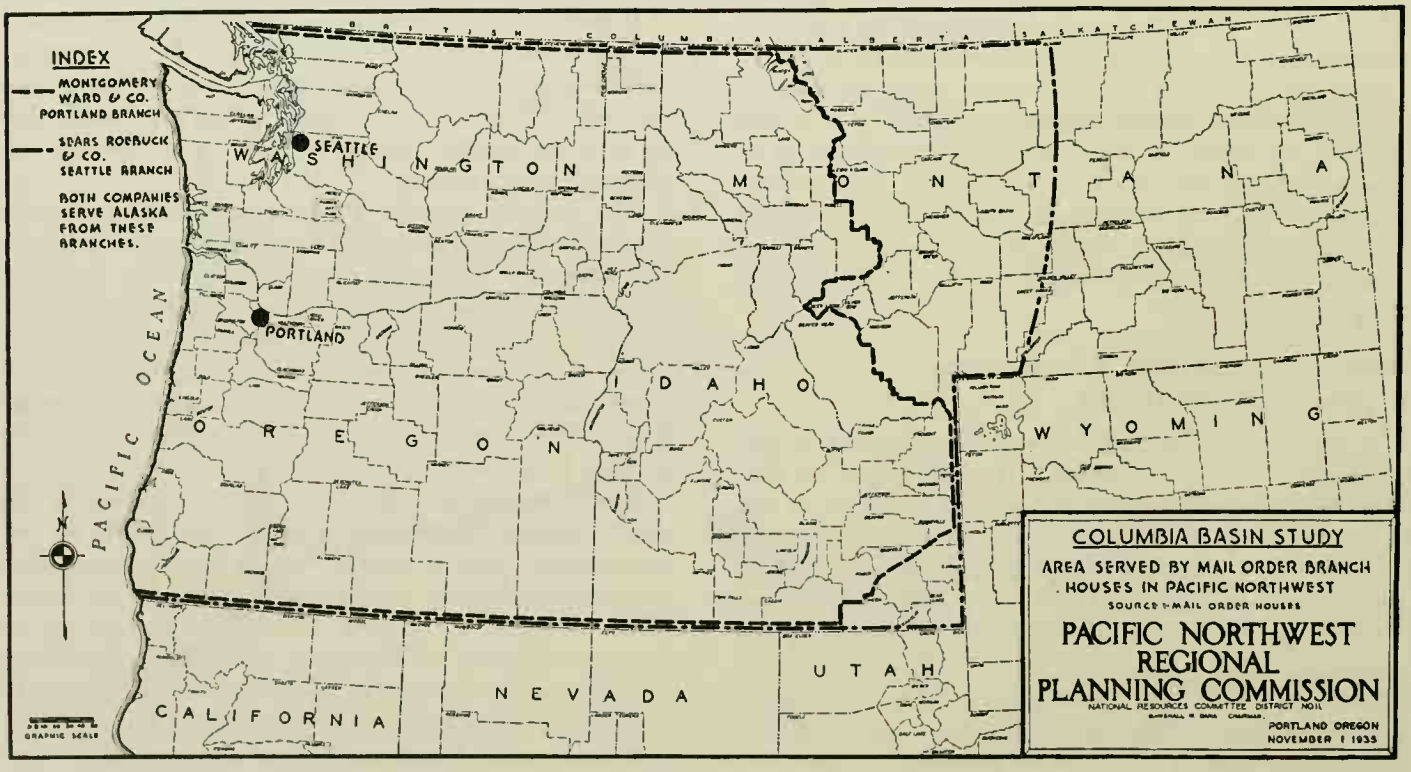


FIGURE 48.

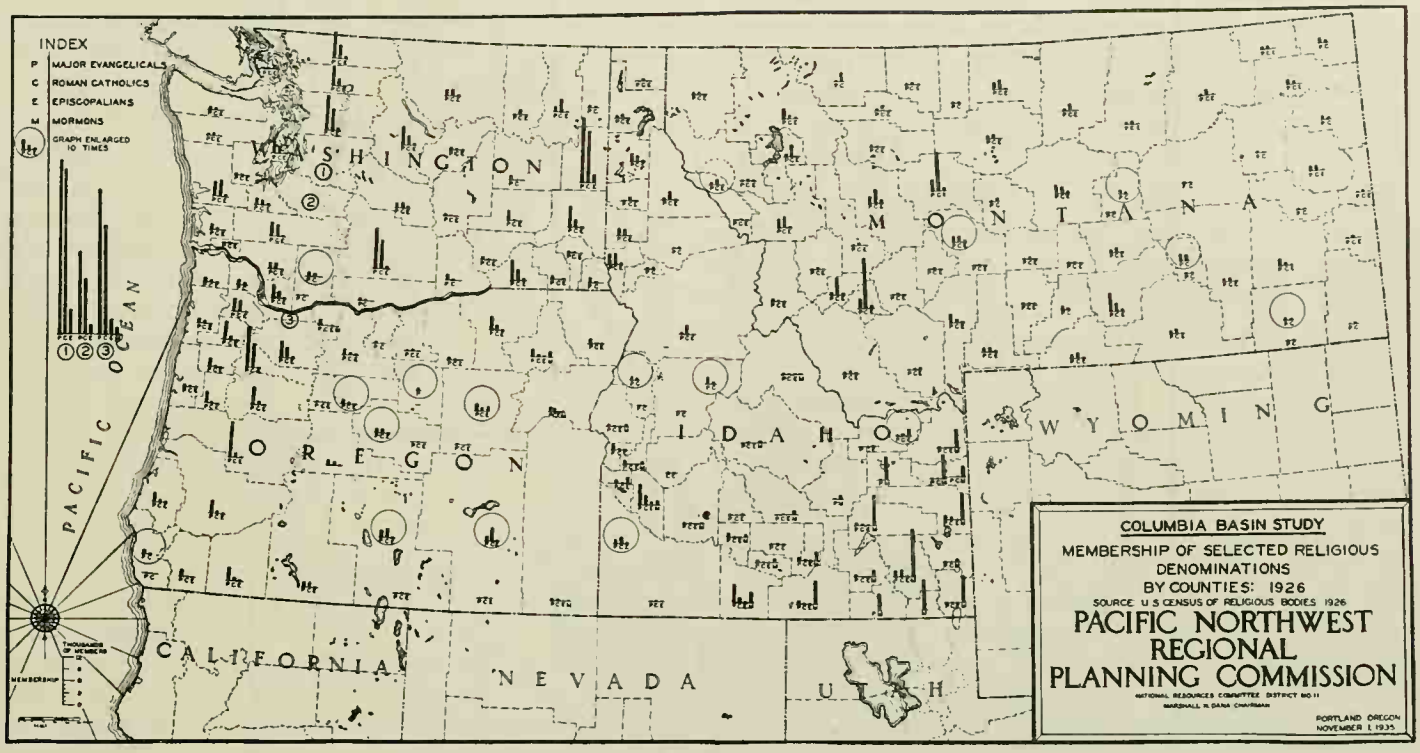


FIGURE 49.

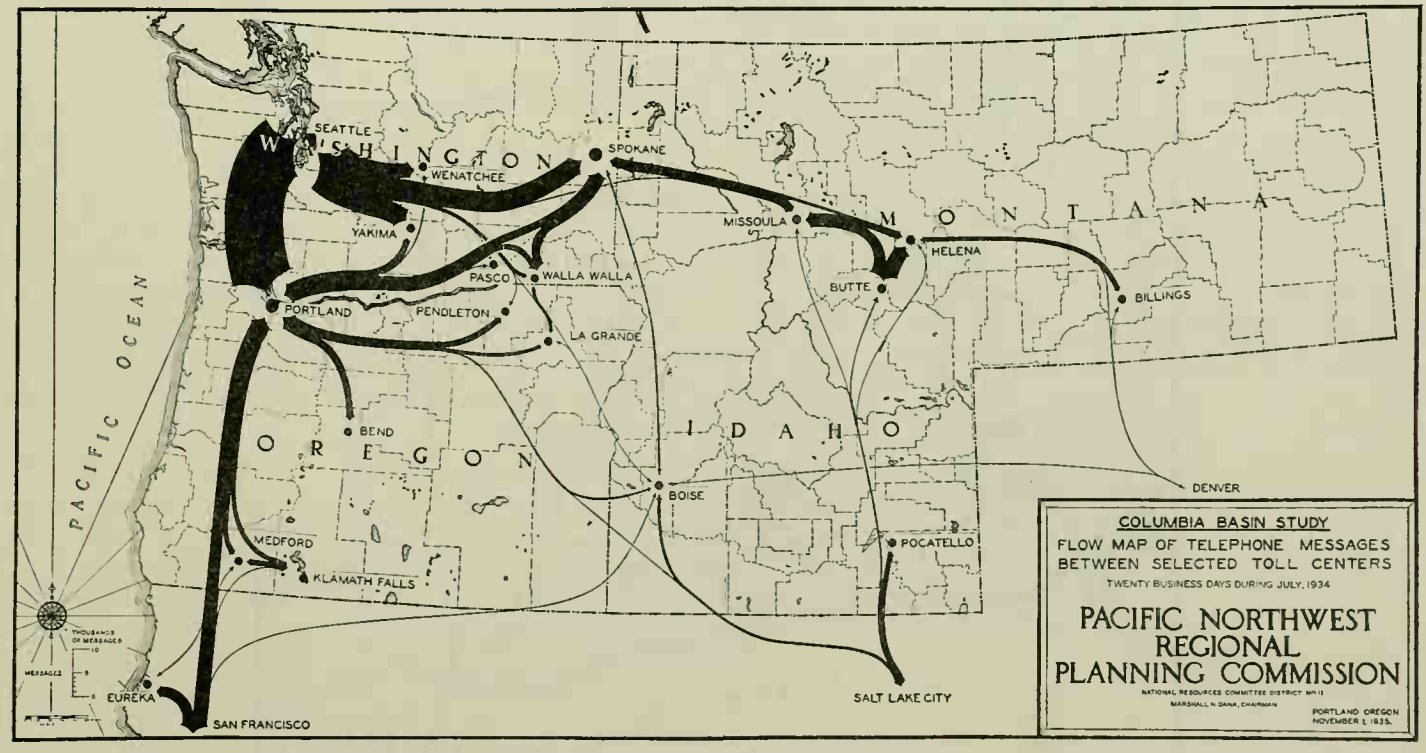


FIGURE 50.

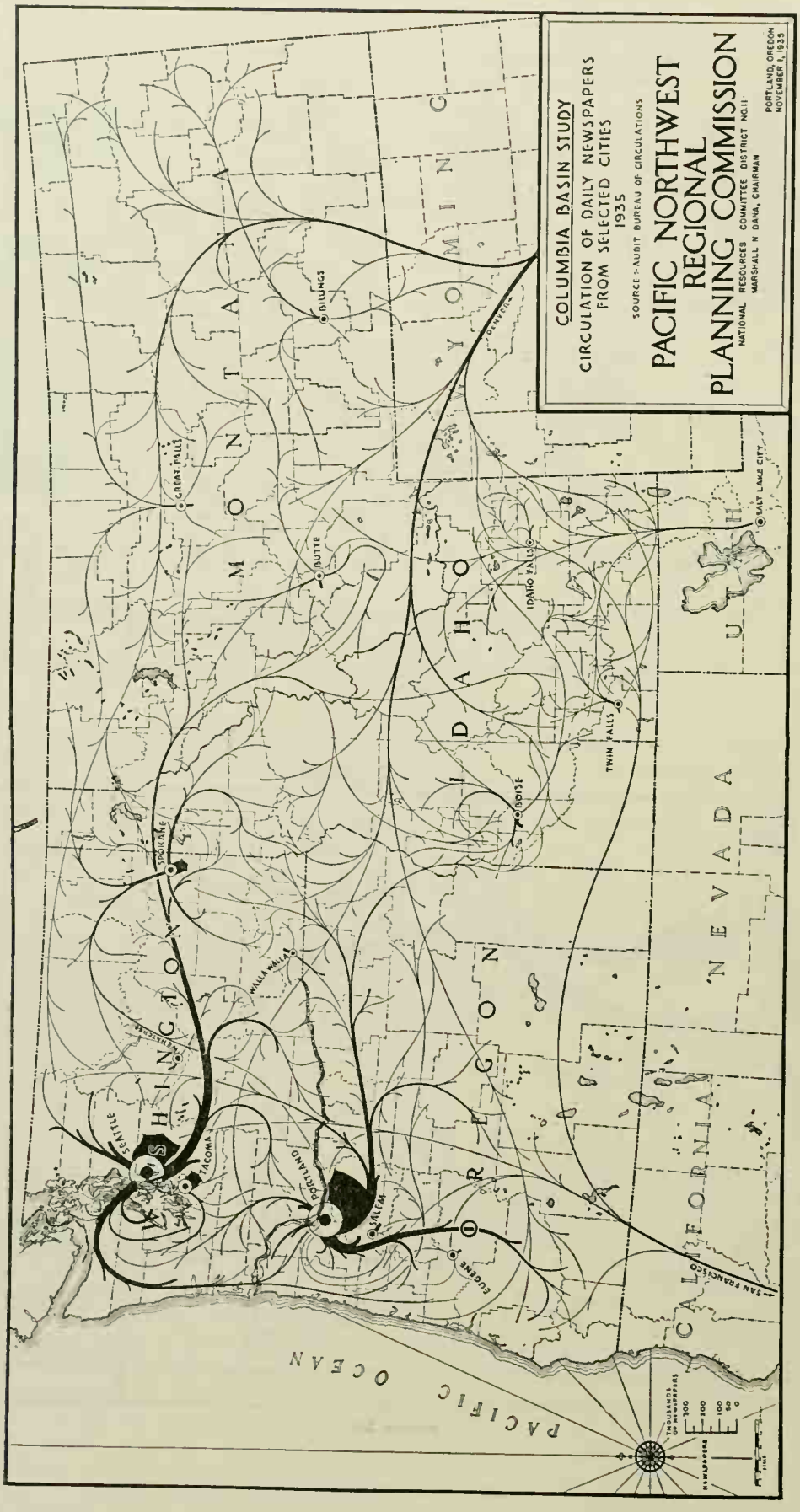

COLUMBIA BASIN STUDY
CIRCULATION OF DAILY NEWSPAPERS
FROM SELECTED CITIES
1935
SOURCE:-AUDIT BUREAU OF CIRCULATIONS
PACIFIC NORTHWEST
REGIONAL
PLANNING COMMISSION
NATIONAL RESOURCES COMMITTEE DISTRICT NO.II
MARSHALL N DANA, CHAIRMAN
PORTLAND, OREGON
NOVEMBER 1, 1935
MONTANA
WYOMING
IDAHO
UTAH
NEVADA
CALIFORNIA
OREGON
WASHINGTON
PACIFIC OCEAN
BILLINGS
GREAT FALLS
BUTTE
IDAHO FALLS
TWIN FALLS
BOISE
SALT LAKE CITY
SPOKANE
WALLA WALLA
SEATTLE
TACOMA
PORTLAND
SALEM
EUGENE
SAN FRANCISCO

FIGURE 51.

accompanying map (fig. 50) shows the number of telephone messages between certain selected toll centers in the Pacific Northwest during 20 working days in July 1934. Not all the long-distance calls for the area are included, but a selection has been made of the points, the calls between which might give some indication of cultural and commercial relationships. The lines indicate the total number of calls handled through the specified toll center. Since the toll centers handle all calls originating or destined to points in their respective territories, the map should not be interpreted as indicating only the calls from the city itself.

The influence of Portland clearly does not extend far south of the Oregon State line, since calls to Eureka are insignificant in comparison with those between Eureka and San Francisco. Medford and Klamath Falls, on the other hand, have many more conversations with Portland than with San Francisco. The very large volume of east and west telephone traffic between Portland and Seattle on the west and points in eastern Oregon and Washington is quite striking. The number of calls from these points to centers east of Spokane is not great. The Montana towns have a majority of conversations among themselves with a considerable traffic between Helena and Spokane and quite heavy traffic between Missoula and Spokane. There is also some contact between the three western Montana points and Salt Lake City. Both Boise and Pocatello in Idaho have more conversations with Salt Lake City than with any other point.

Where there are less than 25 conversations between toll centers nothing was shown on the map. On this basis only Boise, Helena, and Billings had enough business with Denver to be indicated.

Our last test of cultural homogeneity is designed to measure the influence of metropolitan areas on the surrounding territory as shown by the circulation of daily newspapers. The accompanying map (fig. 51) shows the distribution of the customers of the more important newspapers in the region, as given by the records of the Audit Bureau of Circulations. No circulation is shown where the number of subscribers in the county was less than 25. On this basis it may be seen that the influence of Portland extends to every county in Oregon. It also touches a few of the more westerly counties of Idaho. Almost all the counties of western Washington contain subscribers to Portland newspapers, as do the counties of southern and southeastern Washington.

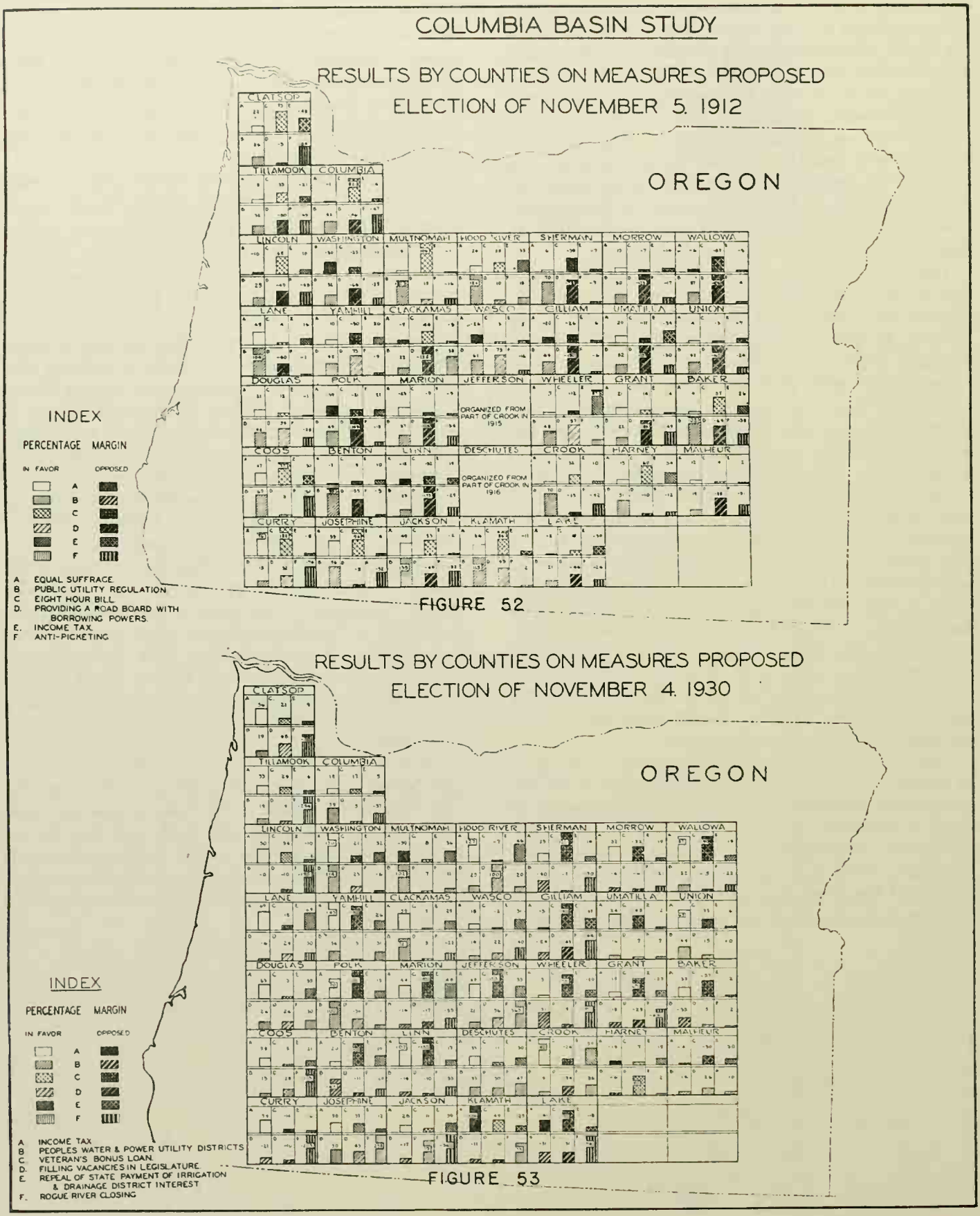
The territory affected by the Seattle papers extends much farther to the east than the Portland papers, covering all of Idaho except the southeastern corner, and including the western part of Montana. It contains most of the counties in northern Oregon—east and west—but practically none of the counties in the southern half of the State.

The influence of Spokane by this measure is somewhat greater than by such other tests as banking relationships, but it extends primarily to eastern Washington and northern Idaho. Multnomah County is the only Oregon county with more than 25 subscribers, and very few Spokane papers circulate west of the Cascades in either Oregon or Washington.

The other cities in the Pacific Northwest shown on the map have subscribers chiefly in adjacent territory, for the most part confined to the same State.

Denver has a more widely dispersed newspaper circulation in the Pacific Northwest than any other city outside the region. This seems to be due to the wide popularity of the Denver Post, rather than to direct cultural ties. Newspapers from Salt Lake City are quite important in southeastern Idaho. San Francisco papers also circulate to some extent in southern Oregon, the most striking feature being the large circulation in Klamath Falls.

The examination of spheres of influence of daily newspapers confirms the generalization that the cultural ties in the Pacific Northwest run east and west just as strongly as north and south, and that the influence of the metropolitan centers on the west extends throughout the States of Oregon and Washington, but becomes weak in eastern Montana and southeastern Idaho.


COLUMBIA BASIN STUDY
RESULTS BY COUNTIES ON MEASURES PROPOSED
ELECTION OF NOVEMBER 5. 1912
OREGON
CLATSOP
TILLAMOOK
COLUMBIA
LINCOLN
WASHINGTON
MULTNOMAH
HOOD RIVER
SHERMAN
MORROW
WALLOWA
LANE
YAMHILL
CLACKAMAS
WASCO
GILLIAM
UMATILLA
UNION
DOUGLAS
POLK
MARION
JEFFERSON
WHEELER
GRANT
BAKER
ORGANIZED FROM PART OF CROOK IN 1915
COOS
BENTON
LINN
DESCHUTES
CROOK
HARNEY
MALHEUR
ORGANIZED FROM PART OF CROOK IN 1916
CURRY
JOSEPHINE
JACKSON
KLAMATH
LAKE
INDEX
PERCENTAGE MARGIN
IN FAVOR
OPPOSED
A
B
C
D
E
F
A EQUAL SUFFRAGE
B PUBLIC UTILITY REGULATION
C EIGHT HOUR BILL
D. PROVIDING A ROAD BOARD WITH BORROWING POWERS.
E. INCOME TAX.
F ANTI-PICKETING
FIGURE 52
RESULTS BY COUNTIES ON MEASURES PROPOSED
ELECTION OF NOVEMBER 4. 1930
OREGON
CLATSOP
TILLAMOOK
COLUMBIA
LINCOLN
WASHINGTON
MULTNOMAH
HOOD RIVER
SHERMAN
MORROW
WALLOWA
LANE
YAMHILL
CLACKAMAS
WASCO
GILLIAM
UMATILLA
UNION
DOUGLAS
POLK
MARION
JEFFERSON
WHEELER
GRANT
BAKER
COOS
BENTON
LINN
DESCHUTES
CROOK
HARNEY
MALHEUR
CURRY
JOSEPHINE
JACKSON
KLAMATH
LAKE
INDEX
PERCENTAGE MARGIN
IN FAVOR
OPPOSED
A
B
C
D
E
F
A INCOME TAX
B PEOPLES WATER & POWER UTILITY DISTRICTS
C. VETERAN'S BONUS LOAN.
D. FILLING VACANCIES IN LEGISLATURE.
E. REPEAL OF STATE PAYMENT OF IRRIGATION & DRAINAGE DISTRICT INTEREST
F. ROGUE RIVER CLOSING
FIGURE 53

6. TESTS OF POLITICAL HOMOGENEITY

The only tests of political homogeneity which would be the same for all four States are national party affiliations which are probably best shown, as the national committee on regional study has done, by votes at Presidential elections. Owing to the usual lack of striking differences such elections have shown most of the time during the past 50 years and to the complexity of motives always entering into voting on such occasions, this is not as significant a test of homogeneity as could be desired. Much more valuable for our purposes are the voting differences on initiative and referendum measures. We believe that the choices made on these measures are better indications of genuine differences on public issues of regional importance than are the Presidential votes. Of course, there are no four-State votes, but since the major challenge to the present regional boundaries relates to the homogeneity of east and west Washington and Oregon and southeast Oregon, the analysis of votes cast in those two States ought to be of special importance.

We have, therefore, taken two elections, separated at intervals of approximately 20 years, and tabulated the votes cast on each measure by counties. Let us see what they appear to show.

The electorate of the State of Oregon in 1912 was called upon to deliver an opinion on 37 measures, many of which were highly significant. The results of the balloting are shown by counties for six of the measures (selected as the most important) on the first of the accompanying diagrammatic maps (fig. 52). The counties on these maps are arranged as nearly as possible in the proper geographical position. The three columns of counties on the left are west of the Cascade Mountains, while the four columns to the right are to the east. Each measure is indicated by a distinctive pattern, a light shading indicating that the county favored the measure, and a dark shading representing opposition. The height of the bars represents the percentage margin in favor or opposed, a bar running the full length of the available space indicating a margin of 100 percent or more.

Careful study of this map does not reveal any east-west split in political sentiment. There is some evidence of a pattern with a smaller design, however. For instance only one of the nine counties on the coast and in southwestern Oregon opposed equal suffrage. In the Willamette Valley, five out of seven (excluding Multnomah County) opposed it. If Lane County is included as more typically a Willamette Valley than a coast county, the results are five out of eight. Three of the six wheat raising counties in northeastern Oregon opposed equal suffrage, while all but one of the southeastern counties favored it. It has not been possible, because of limitation of time, to analyze the data to discover whether a pattern such as that indicated above holds for other measures. Our chief concern has been to see whether there was evidence of a cleavage between the eastern and western sections of the State.

Six measures voted on at the election in November 1930 are shown on the second map (fig. 53). In this case we find one measure only on which a difference appears between the eastern and western sections of the State. The veterans' bonus loan was favored by the west and opposed by the east. To make sure that there were no other such cases in the two elections studied, all but the quite unimportant measures in both elections were subjected to the Chi-square test for independence.[11] The test was applied to 38 measures, 32 in the election of 1912 and 6 in the election of 1930. The case just cited was the only one in which the divergence between the east and west was greater than could be expected by chance.

[11] In this procedure the results are arranged as in the following table for the veterans' bonus loan:

	Counties		Total
	In favor	Opposed	
Eastern Oregon	3	15	18
Western Oregon	12	6	18
Total	15	21	36

A table is then constructed which indicates the type of distribution which would be expected if there were no difference in sentiment between the sections. In this case this table would be as follows:

	Counties		Total
	In favor	Opposed	
Eastern Oregon	7.5	10.5	18
Western Oregon	7.5	10.5	18
Total	15	21	36

Even if there were no differences between the sections, we would not hope to have results exactly like this—if only for the reason that our method precludes half counties. The Chi-square test reveals the probability of a divergence of the actual values from the expected values as great or greater than that shown, even when there are no real differences between the sections. In this case the probability is less than one in a hundred that such a divergence could arise by chance.

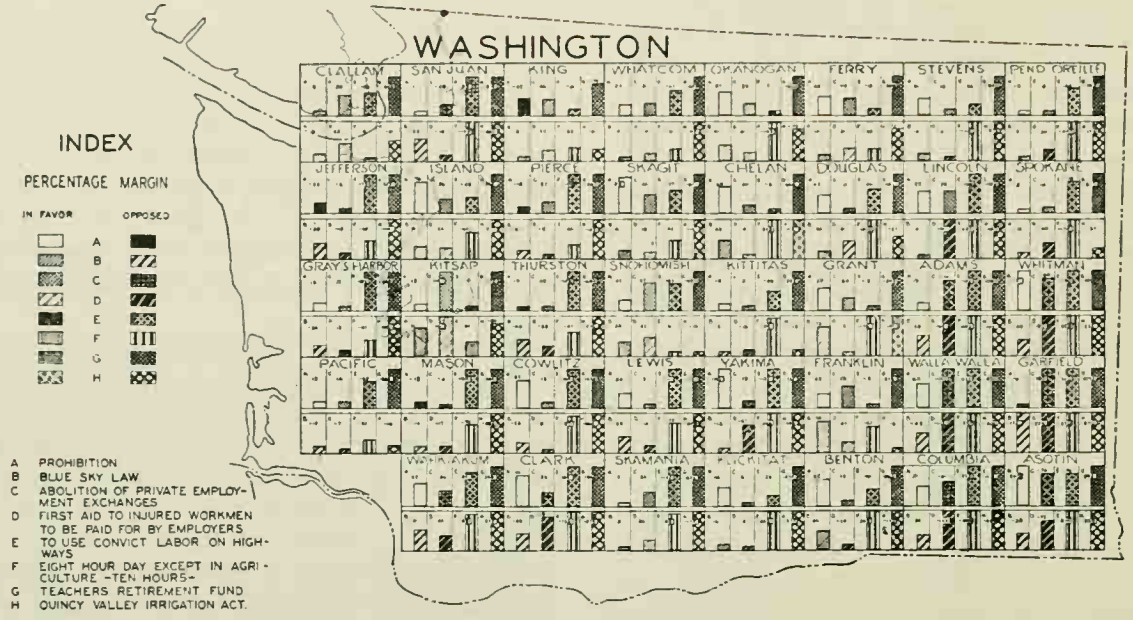


FIGURE 54

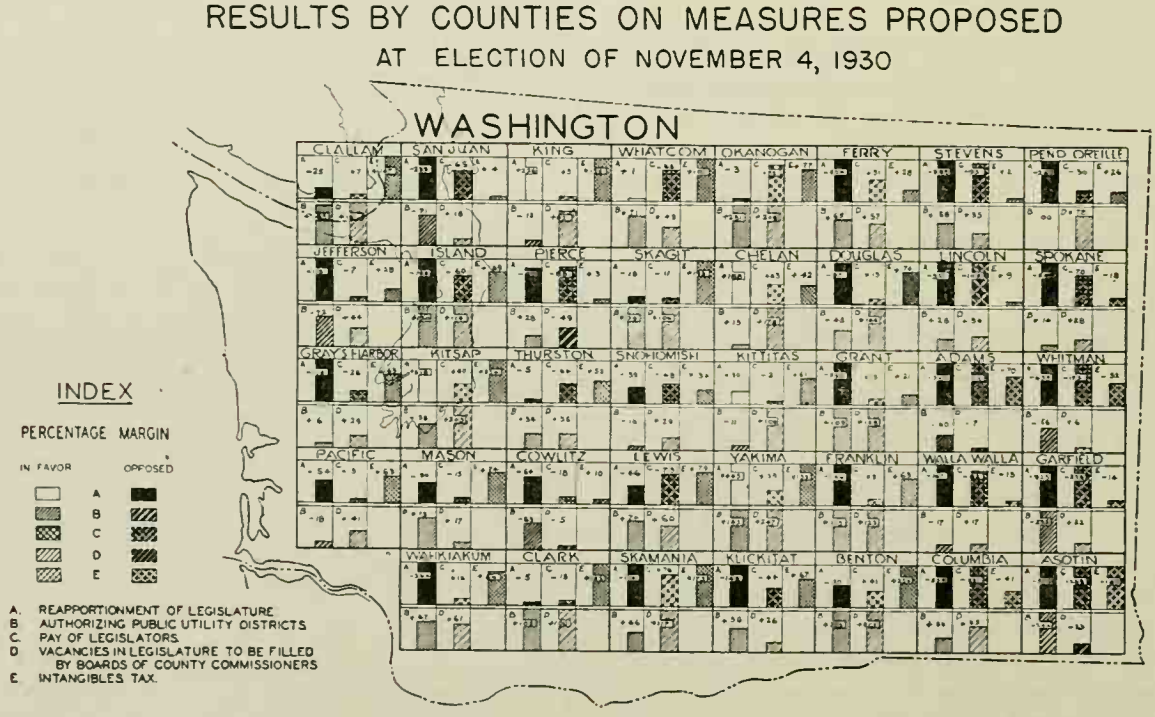


FIGURE 55

The results of the election in Washington in November 1914 are shown on the third diagrammatic map (fig. 54. On this map the western Washington counties are included in the four columns on the left, and the eastern Washington counties in the four columns on the right. Study of both this map and the Chi-square test fails to reveal any broad pattern of political sentiment.

The fourth map (fig. 55) shows the results in Washing ton of the election of November 1930. In this case there is but one of the six measures which shows divergence between the east and west. Every county in western Washington was in favor of the intangibles tax. This measure was a constitutional amendment providing for the classification of property including intangibles, and permitting a lower tax on intangibles than on other property. It also made possible lower taxes on mines, mineral resources or reforested lands by permitting lower ad valorem taxes, or yield taxes, or both. A solid block of seven counties in southeastern Washington opposed it. These are the wheat raising counties of Washington. For our purpose, however, it is significant to point out that on this measure they differed as sharply from the remaining 13 eastern Washington counties as from those west of the Cascades.

The Chi-square test can reveal divergence from expectations by number of ballots cast, as well as by number of counties. This was done with the 1930 election in Washington and it revealed that there were significant differences between east and west votes on every measure. In this case the large number of votes cast in metropolitan centers converts the test into one of urban-rural conflict rather than one of geographical determinism. For example, only three western Washington counties were in favor of the reapportionment of the legislature. This was a measure which would grant King County, Wash., more adequate representation. However, the Seattle vote was so strongly in favor of the measure that it resulted in a greater favorable vote in western Washington than would have been expected.

It was impossible in the time available to carry this investigation far enough to reveal such sectional differences as may very well exist. The study does show, however, that so far as political sentiment is concerned, the Cascade Mountains do not coincide with a change in complexion.

Had time permitted we would have repeated and brought up to date the study made by Stuart A. Rice in 1923 for the first decade of experience in Washington with the initiative and referendum. It may be interesting to recall the conclusion (which we are not ready to endorse) to which he came concerning geographic difference of political attitude. His conclusion differs from that implied in the national committee's analysis, despite the fact that it shares the same (we feel mistaken) view of geographic influence. Whereas the latter indicates greater independence in the voting of the eastern part of Washington, Rice concludes that the people there are decidedly more conservative than those of western Washington.

STAFF REPORT—SECTION III
7. CULTURAL HISTORY AND REGIONAL HOMOGENEITY

Since regional planning is a political function, we are particularly concerned with any data that may throw light upon the prospects of regional political cohesion either within the present boundaries or those which the national committee has proposed. We are inclined to believe that the absence of any regional political pattern, despite the existence of certain local patterns, is due to the wide dispersion of similar economic activities (as shown in our discussion of agriculture and forestry land uses) and to the accidents of culture history. One of these historical-accident facts which appears to have some importance is the piecemeal character of the settlement of the Pacific Northwest. Settlement was slow, much slower than in the Middle West. It dribbled out over a period longer than 75 years. Considerable intervals elapsed between the colonization of different districts. The different migration periods tapped different parts of the United States and the world and different social strata. As a consequence, the political and other cultural traditions which have become established are also different. These tend to persist and localize political cohesion.

Let us illustrate these generalizations by a few specific cases. The lower Willamette Valley was settled early in the history of Oregon. Many people came here from border States, like Missouri. They brought with them a culture which was sufficiently distinct to color the attitudes and outlook of their descendants who still live in that section. Some of these attitudes appeared to have been expressed in continued antagonism to certain State institutions of higher learning and to the metropolitan culture of Portland. We hazard the judgment that the effect of the pre-Civil War group of immigrants upon current economic and social issues still persists and that in its persistence it often acts as an important factor of cleavage against other sections of western Oregon.

Other parts of western Oregon, as well as eastern and southern Oregon, were settled by different immigrant groups. The real agricultural development of northeast Oregon came after the completion of the transcontinental railways, during the eighties. The best available evidence seems to indicate that the people who settled northeastern and north central Oregon have always shown a disposition, as expressed by the attitudes of their representatives in the State legislature, to work with Portland, the one metropolitan area in the State. The characteristic legislative combinations have been: An alliance between Portland and eastern and southeast Oregon as against the more thickly settled lower Willamette Valley, with the coast counties usually supporting the valley and southern Oregon playing a lone hand. Even southeastern Oregon, though in distance some 400 miles away from Portland, has tended to vote in the legislature with that city. This is an example of the occasional irrelevance of distance on one phase of social cohesion in the State of Oregon.

Another illustration of the effect of historical accident on social homogeneity is the case of the Hood River and Upper Rogue Valleys. A large part of the population is composed of people who have arrived since 1900. Many of them were people of some means, who possessed the advantages of college education. They came to these valleys with the expectation of becoming orchardists and making a comfortable living in an unusually attractive mountain valley environment. We are not concerned here with certain disappointing experiences through which some of them have gone, but we must notice the allegation by legislative observers that their outlook on governmental problems possesses a quality markedly different from the Willamette Valley or the coast counties. We are convinced that the influence of these historical culture facts upon the problem of regional homogeneity is a matter of some importance.

It is probably to the accidents of culture history that one must look for valid explanation of the differences between Seattle and Portland in national party affiliation shown by the votes for President. The economic foundations, climatic conditions, etc., are very much alike, yet they show different tendencies in national party allegiance. We know that the settlement of the area near Portland outdates Seattle by more than a quarter of a century—a long time in the life of these new States. Portland created a regime of "first families" more than a generation earlier than Seattle. Their descendants have been dominant influences in the banking, business, and opinion-forming circles of the city. The Seattle cultural story shows a different tendency with less control by a small group of heirs of early pioneer business men. Moreover in Seattle the accidents of cultural history have permitted a more vigorous and more radical labor leadership. We do not say that these historical facts constitute a full account for the differences of political affiliation,

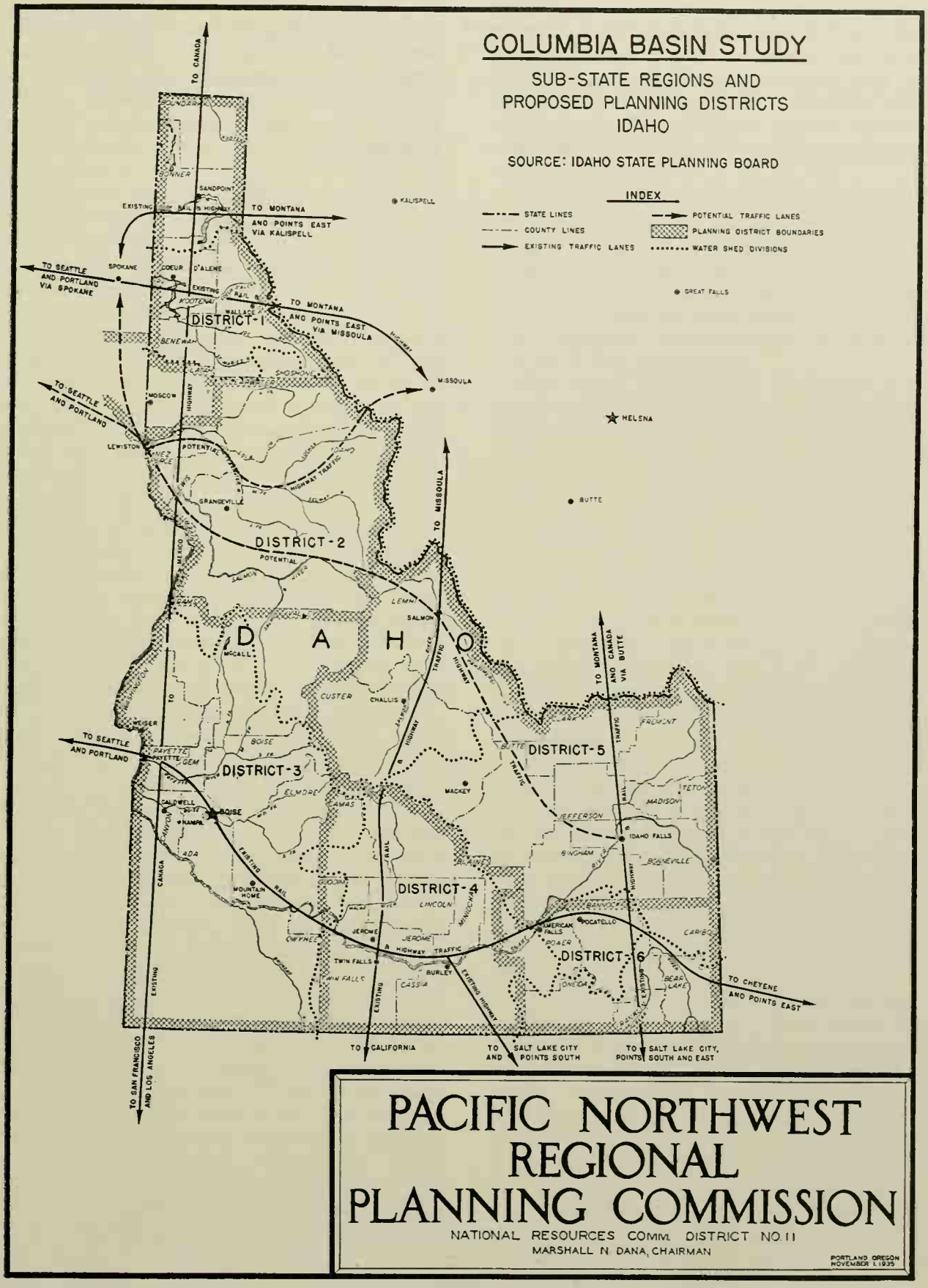

COLUMBIA BASIN STUDY
SUB-STATE REGIONS AND
PROPOSED PLANNING DISTRICTS
IDAHO
SOURCE: IDAHO STATE PLANNING BOARD
INDEX
STATE LINES
COUNTY LINES
EXISTING TRAFFIC LANES
POTENTIAL TRAFFIC LANES
PLANNING DISTRICT BOUNDARIES
WATER SHED DIVISIONS
DISTRICT-1
DISTRICT-2
DISTRICT-3
DISTRICT-4
DISTRICT-5
DISTRICT-6
I D A H O
TO CANADA
TO MONTANA AND POINTS EAST VIA KALISPELL
TO SEATTLE AND PORTLAND VIA SPOKANE
TO MONTANA AND POINTS EAST VIA MISSOULA
TO SEATTLE AND PORTLAND
TO MISSOULA
TO MONTANA AND CANADA VIA BUTTE
TO SEATTLE AND PORTLAND
TO CHEYENNE AND POINTS EAST
TO SAN FRANCISCO AND LOS ANGELES
TO CALIFORNIA
TO SALT LAKE CITY AND POINTS SOUTH
TO SALT LAKE CITY, POINTS SOUTH AND EAST
KALISPELL
GREAT FALLS
HELENA
BUTTE
MISSOULA
SPOKANE
COEUR D'ALENE
LEWISTON
MOSCOW
GRANGEVILLE
SALMON
CHALLIS
MACKEY
BOISE
CALDWELL
NAMPA
MOUNTAIN HOME
TWIN FALLS
BURLEY
JEROME
IDAHO FALLS
POCATELLO
AMERICAN FALLS
PACIFIC NORTHWEST
REGIONAL
PLANNING COMMISSION
NATIONAL RESOURCES COMM. DISTRICT NO. 11
MARSHALL N. DANA, CHAIRMAN
PORTLAND OREGON
NOVEMBER 1935

FIGURE 56.

but they are probably a part of the explanation. There are doubtless many other elements of difference between the population composition of the two cities that may have bearing on the differences in expression of political affiliation. What we wish to point out by this example is that the foundations of homogeneity or cleavage between sections of the Pacific Northwest cannot be adequately discovered without going beyond physiographic, climatic, and economic criteria. Since the Regional Planning Commission and the State planning boards are concerned with fortifying the tendencies that make for a wider sense of community of feeling, they might profitably explore these cultural facts more fully.

Our reading of the data which we have assembled makes us believe that the Cascades should not be used as a dividing line between a maritime region and two intermountain regions. Neither do we feel that the evidence of difference between the Columbia Basin area and central and southeastern Oregon is sufficient to detach the latter area and push it into a new region. The orientation of southeastern Oregon toward the Salt Lake-intermountain section is not so strong as its ties to the rest of Oregon and the Northwest. We suggest below how some of its special problems can be met.

We are of the opinion, however, that as soon as regional planning commissions are well organized at Bismarck (or some other city in the plains region) and at Salt Lake City, perhaps, for the intermountain region, Montana and Idaho should be entitled to representation in those regional organizations as well as in those of the Pacific Northwest region. That part of Montana east of the Continental Divide ought to become a working partner in the regional commission to the east.[12] We think that this can be done readily under the present State planning framework. As we show in the next section of this report, the Montana planning organization now has an advisory council selected from districts that distinguish between the eastern and western parts of the State. By making such a council the planning board in legal name as it is now in fact, the districts on the west side could select a chairman to represent their interests who would attend the meetings of the Pacific Northwest Regional Commission, along with the chairman of the whole board. Similarly, eastern Montana should affiliate with the regional commission to the east. The present consultant for the Montana board suggests that the State is so large and the planning interests of the two parts of the State so different that the western section should have an organization with an assistant consultant, located in Missoula, and the eastern district should have an office in Bozeman, while the parent coordinating office would remain at Helena. This seems a sensible arrangement. There is no reason why, under this plan, the unity of the State planning board cannot be maintained for over-all State purposes, and for its influence on the State legislature and administration.

In making this suggestion concerning eastern Montana, we wish to point out that in the absence of any other regional aid, the Pacific Northwest Regional Planning Commission has been of great assistance in helping that hard-hit area to solve its crisis difficulties. That was a service which indicates the flexibility of regionality. But the time seems ripe for the modification of this relationship.

For Idaho the situation is somewhat different. From such evidence as we now have—and we confess it is not very complete—we feel that the entire State is tied to the Pacific Northwest region by the dependence of the State upon the tributaries of the Columbia for its vital water needs. On this account, southern Idaho—which appears to have its closest trade and cultural relations with Salt Lake City—needs to remain a participant in regional affairs toward the west so long as these water problems are unsolved. Nevertheless, this part of the State should participate in the regional planning organization of the intermountain region when that is set up. The remarkable subregional organization already established in Idaho, as shown by figure 56, will facilitate this Janus-like orientation. A chairman selected by the southern counties affected (we prefer to leave the precise line to the Idaho board to draw) ought, in company with the State chairman, to attend the regional meetings at Salt Lake. The staff of the State board should serve this section of the State for this purpose. Knowledge would be centralized at the State office in Boise and unity of the over-all State interests could be maintained, while the different needs of the two major parts of the State, for regional planning purposes, could be served.

The situation of southeast Oregon deserves further explanation. It is true that there is one important difference in land use between the northern and southern parts of eastern Oregon. That difference is in the ability to grow cereal crops on dry farms. There is a slanting east-west line, roughly coincident with the John Day River line, which marks a rather abrupt transition in the annual precipitation. North of this line the deposit of moisture is from 12 to 18 inches each year, south it is from 12 to 6 inches. While, as the irrigation map shows, there is much irrigation practiced in the north or Columbia Basin area, no

[12] The Continental Divide is not a precisely valid line, since for some distance to the east the character of economic activity resembles rather closely that of the western portion of the State. This is a matter, however, that should be left to the planning organization of the State, which, at the present time, appears to feel that the Divide should be used, at least initially, for the proposed readjustment.

crops other than timber and grass can be grown in the southern area without irrigation. It is largely because of this fact that about the only part of Oregon where the Federal Government still has large blocks of unappropriated lands (other than those used for forest) is in southern Oregon. The major difference in planning problems between these two parts of eastern Oregon is the greater acuteness of the need of surface water for stock and the question of the management of the Federal lands for grazing versus game refuge purposes. The grazing industry is also important in the northern section although not so large a factor; the irrigated crops and techniques are the same; the forest activities are important in both sections, with probably more cutting taking place in the southern section; but the northern section has no important question of conflict over public lands administration.

As a result of these problems connected with eastern Oregon, there was set up last spring, within the Oregon Planning Board, a special subcommittee called the Eastern Oregon Public Lands Committee. Its chairman is a member of the State planning board who comes from that part of the State. Its personnel consisted of interested citizens from that half of the State and State and Federal officials representing administrative agencies concerned in public-land functions. It was divided into three subcommittees: (1) Wildlife preserves, predatory animal control, etc., (2) range improvement and management, and (3) administration of submarginal-land purchases.

While all of these groups have achieved notable reports, the first committee is of most concern to the present discussion. It was dealing with a question that was also of great interest to adjoining districts of Idaho and Nevada. Consequently a meeting was held at Burns, on May 5, 1935, to which were invited interested groups not only from southeast Oregon, but from Idaho and Nevada. After discussion, a tentative agreement on the matters at issue was reached. The chairman was then sent to attend a meeting at Salt Lake City, where problems of a similar sort for all the Western States were threshed out with Jay N. Darling, head of the Biological Survey, and F. R. Carpenter, administrator of the Taylor Grazing Act. Again the conflicting interests arrived at an agreement substantially like the earlier one. The chairman then returned and reported to a meeting of his interstate constituency at Lakeview, and the report was accepted. Thereupon the subcommittee on wildlife preserves, predatory animal control, etc., presented a report embodying these agreements to its parent committee, which in turn sent it on to the Oregon State Planning Board which adopted it. As a result, the State and Federal agencies controlling the public lands have put the recommendation into effect.

This is a very good illustration of the possibility of dealing with interregional problems within the brackets of the present State planning structure. It is an example of how flexibility may be achieved to suit the needs of the varying areas covered by specific planning problems while retaining the influence of the whole State board needed to secure effective political action. Had there been organized at that time, county and intercounty planning commissions, they, rather than a special subcommittee of the State board, might have constituted the planning group to thresh out these problems. Even in that case it would have been desirable to have the assistance of the State board and, had there been a regional commission at Salt Lake, the good offices of the Pacific Northwest Regional Planning Commission.

It is our belief that problems like the foregoing, that cross over from one regional planning area to another, can be handled by temporary or semipermanent coordinating devices, sometimes sponsored by two State planning boards, sometimes the outgrowth of local county or substate planning activities on two sides of a State or regional boundary. No one can say in advance just what interstate or interregional groupings should be made, until the desire to solve an emerging problem reveals the lineaments of the problem and suggests the appropriate structure. On that account our recommendation for dealing with these overlapping planning difficulties is that the regional commissions assign some member of their staff, whose training is suitable, to study the process of local, State, and regional planning with the purpose of anticipating the emergence of such problems and devising methods of adapting the planning organization of the county, intercounty, State, and regional commissions to suit such varying planning needs. In this way flexibility could be continuously preserved while the requirements of political integrity for county, State, and regional agencies could be maintained. That they need to be maintained to fulfill planning through changes in legislation and public administration is the consensus of opinion of the people engaged in active planning in the Pacific Northwest region. We have already explained why we believe this view is sound.

In concluding this discussion there is one other variation in planning organization which we have been unable to explore but which should be broached. Within the regional and State planning organization, there is probably need to recognize centers of potential planning activity that have thus far escaped formal notice. State and Federal administra-

tion is not confined either to a State or "regional" capital. In a number of important cities are located the headquarters of State and Federal officers whose duties relate not only to each other, but frequently to similar functions performed by local officers. We hazard the opinion that valuable coordinations could be made in such subcenters. An illustration of what we have in mind is furnished by a situation that exists in Spokane, Wash. There a suboffice of the Federal Biological Survey is located, although the headquarters of this service are at Olympia. The work of this service in the territory adjacent to Spokane is very intimately affected at times by the Indian agency, the game management office, in the same city, and the Soil Conservation Service and the State college at Pullman. For the purpose of making programs dealing with common subjects, it is the view of Leo Couch, who has charge of the biological survey work for the State of Washington, that the officers of these different services in the Spokane territory ought to create a regular means of joint planning. This suggests the need to find out not only what other potential subcenters of planning may exist, but what other activities in Spokane need articulation and recognition in the State and regional planning process.

The process of organizing subcenters necessitates not only systematic study but slow and deliberate development. Difficult as it will be to secure the needed regional adjustments among Federal and State administrative agencies at regional and State centers, there are even greater difficulties in creating the further autonomous arrangements for the officers operating from the subcenters. While progress is bound to be slow, a beginning ought soon to be undertaken.

9. COMMERCIAL COMPETITION AS A DETERRENT TO REGIONALISM

The foregoing discussion presents much evidence of the existence of homogeneity, cohesion, and regional consciousness in the Pacific Northwest. The ready response to the idea of a regional planning commission when that was simultaneously suggested by leaders in the region and by the President and the National Planning Board is therefore no accident. It is good evidence that the historical traditions and the insistent needs of the present are creating a regional community sense, which, if it can be sustained and heightened, promises success for regional planning.

Nevertheless, there is one fundamental contradictory tendency, that, unless it is curbed, will menace this success. There appears to be a constant tendency for an economic system based upon the principle of private enterprise to produce cleavages that impede the growth of regional community feeling. The competition between Seattle and Tacoma, or Seattle and Tacoma on the one hand and Portland on the other, has been intense and at times bitter. The owners of property in each of these cities desire the increases of population, which have characterized the growth of the Pacific Northwest, to center in their respective communities. At the present juncture when, as a result in part of the large Federal public works, they have high hopes of a great expansion of industry, with large increases of population, they are keenly concerned with securing for their respective towns as large a share of this prospective increase as possible. Out of that desire, based upon the wealth increments which flow into private purses where large populations congregate, may come an increased set of tensions tearing apart the ties that have been reaching out toward a community of interests. This seems most probable if the generation of large blocks of cheap electric energy at Bonneville and Grand Coulee results in concentrating in one or two favored locations the industries that may use this power. It is clearly evident that the rate structure will be a matter of key importance in accelerating or diminishing such concentration. The early completion of Bonneville has produced a strong demand by Portland business groups that a differential rate structure be set up which will give to Portland the economic advantages of its proximity to Bonneville. Without presuming to judge the economics of the question, we predict that if this contention is accepted it will announce a period of intense hostility between Portland and all the cities remote from Bonneville. This is not a promising prospect for regional planning.

Another evidence of the disintegrating effect produced by our economic system on the sense of regional community is shown by the attitude of the small cities which cluster around large metropolitan centers toward such centers. Much of what is called urban-rural cleavage is really the traditional antagonism of the small town against the metropolis. One very observant resident of the city of Spokane, who has seen very intimately the evolution of eastern Washington and northern Idaho during the past 40 years, declares that there is probably more acute jealousy between the small cities in eastern Washington and northern Idaho against Spokane than there is antagonism between Spokane and the coast cities of Seattle, Portland, and Tacoma. He explains this fact as due in considerable part to the effect of the automobile and good roads upon the trading habits of the farmers and the small-town dwellers who live within a convenient trade radius of Spokane. Instead of confining their purchases to the small city adjacent to their own homes, they tend to go to the larger city for their more important purchases. The result is a jealousy and ill will on the part of the less fortunate merchants of the smaller towns against the metropolitan merchant class. This seems a valid explanation. We are convinced that in part it explains the conflict between Portland and the Willamette Valley small cities. Similar cleavages exist in the hinterland of the other metropolitan centers of the region.

Another example of the forces working against regional cohesion is furnished by the attitude of irrigationists toward one another. Whatever antipathy may exist among the farmers of the Middle West toward the expenditure of Federal funds for reclaiming western arid lands can be matched in intensity of feeling by the dislike shown by one irrigated district against other districts or prospective districts within the West itself. This cleavage among those engaged in the same kinds of economic enterprise was made clearly evident during the hearings held by the Regional Planning Commission in September 1935. Spokane merchants have visions of a great increase in population with a consequent increase in buying power when Grand Coulee brings in the Columbia Basin. But in the minds of the Idaho irrigationists, as expressed by their representatives at the Spokane hear-

ings, these visions assume the qualities of nightmare. The Idaho people voiced their fear that the Columbia Basin project means a destruction of the economic foundations of the irrigated Idaho valleys. If the unit cost of the development of the Columbia Basin lands is less than the cost to the Idaho irrigated valleys, they argue, it means a loss for Idaho irrigationists. They are also afraid that the increase in irrigated land means overproduction, with consequent decline in the returns to the existing irrigationists.

The disintegrating tendencies of this competitive situation go even further than that in their effect upon irrigationist unity. There are well-known cases in the Pacific Northwest where a well-watered valley has opposed the efforts of an adjacent valley to secure a needed supplemental water supply.

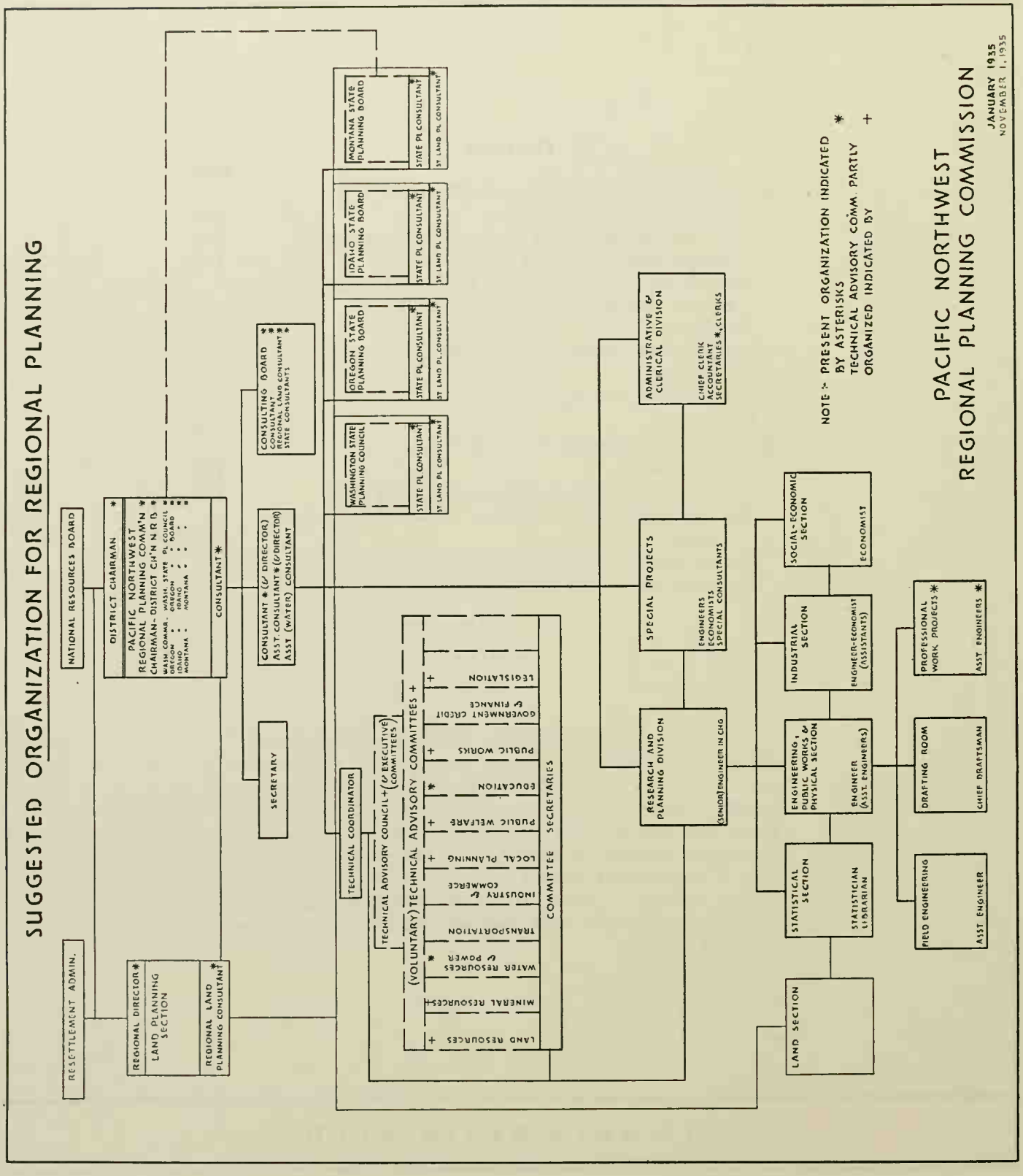
The ties of social intercourse, of common vocation, and of culture that appear to offer a good foundation for regional unity are continually theatened by the tensions created as a result of this competitive struggle. If regional planning is to succeed, every chance to lessen these tensions must be seized. At the present juncture the Federal Government has a peculiar opportunity to increase the balance in favor of regional homogeneity and regional planning and development. The policy it adopts toward the use of the great works on the Columbia River may further the regional movement in the Pacific Northwest or it may accelerate the competitive and divisive tendencies. If Bonneville power is distributed in such manner as to concentrate its benefits to the Portland area and if Grand Coulee energy is sold on terms of peculiar advantage to the people of the Spokane area, broad regionalism will receive a deadly blow and competitive localism will spring up with resurgent energy. A wise Federal policy will insist that the benefits of its regional investments shall be spread as widely as is economically possible throughout the region.

STAFF REPORT—SECTION IV
PLANS FOR REGIONAL ORGANIZATION

Contents

	Page
1. Organization for Planning in the Pacific Northwest	
Planning activities undertaken	135
Functions that should be embraced in planinng	146
Planning organization and structure	153
Relation of Pacific Northwest Regional Planning Commission to a national planning agency	167
Conclusion	170
2. Organization for Construction of Public Works	
Introduction	171
Public works planning	171
Conclusion	174
3. Organization for Operation of Public Works	
Introduction	175
Construction agency to operate after completion	176
Relative advantages of bureau, corporation, and commission	177
Unified operation under an existing agency	183
Proposed operating organization	186

. . . Let us restate the qualities, which in addition to unification of management, must be sought for in the operating structure: . . . (1) driving power and administrative talent adequate to secure the maximum social advantage from these public works, (2) the maximum responsiveness to regional sentiment and desires, (3) the maximum protection of the national interest . . . through proper attention to the business requirements of the enterprise, and (4) the best articulation with regional planning . . . (pages 175–183)


SUGGESTED ORGANIZATION FOR REGIONAL PLANNING
PACIFIC NORTHWEST
REGIONAL PLANNING COMMISSION
JANUARY 1935
NOVEMBER 1, 1935
NOTE :- PRESENT ORGANIZATION INDICATED BY ASTERISKS
TECHNICAL ADVISORY COMM. PARTLY ORGANIZED INDICATED BY + *
NATIONAL RESOURCES BOARD
RESETTLEMENT ADMIN.
DISTRICT CHAIRMAN *
PACIFIC NORTHWEST REGIONAL PLANNING COMM'N *
CHAIRMAN - DISTRICT CH'N N R B *
WASH COMMR. WASH. STATE PL COUNCIL *
OREGON " OREGON " " BOARD *
IDAHO " IDAHO " " " *
MONTANA " MONTANA " " " *
CONSULTANT *
REGIONAL DIRECTOR *
LAND PLANNING SECTION
REGIONAL LAND PLANNING CONSULTANT *
CONSULTING BOARD * *
CONSULTANT
REGIONAL LAND CONSULTANT * *
STATE CONSULTANTS
CONSULTANT * (& DIRECTOR)
ASST CONSULTANT * (& DIRECTOR)
ASST (WATER) CONSULTANT
SECRETARY
TECHNICAL COORDINATOR
WASHINGTON STATE PLANNING COUNCIL
STATE PL CONSULTANT *
ST LAND PL CONSULTANT *
OREGON STATE PLANNING BOARD
IDAHO STATE PLANNING BOARD
MONTANA STATE PLANNING BOARD
TECHNICAL ADVISORY COUNCIL + (& EXECUTIVE) COMMITTEES
(VOLUNTARY) TECHNICAL ADVISORY COMMITTEES +
LAND RESOURCES +
MINERAL RESOURCES +
WATER RESOURCES & POWER *
TRANSPORTATION
INDUSTRY & COMMERCE
LOCAL PLANNING +
PUBLIC WELFARE +
EDUCATION *
PUBLIC WORKS +
GOVERNMENT CREDIT & FINANCE
LEGISLATION +
COMMITTEE SECRETARIES
ADMINISTRATIVE & CLERICAL DIVISION
CHIEF CLERK
ACCOUNTANT
SECRETARIES *, CLERKS
SPECIAL PROJECTS
ENGINEERS
ECONOMISTS
SPECIAL CONSULTANTS
RESEARCH AND PLANNING DIVISION
(SENIOR) ENGINEER IN CHG
SOCIAL-ECONOMIC SECTION
ECONOMIST
INDUSTRIAL SECTION
ENGINEER-ECONOMIST (ASSISTANTS)
ENGINEERING, PUBLIC WORKS & PHYSICAL SECTION
ENGINEER (ASST. ENGINEERS)
PROFESSIONAL WORK PROJECTS *
ASST ENGINEERS *
STATISTICAL SECTION
STATISTICIAN
LIBRARIAN
DRAFTING ROOM
CHIEF DRAFTSMAN
LAND SECTION
FIELD ENGINEERING
ASST ENGINEER

STAFF REPORT—SECTION IV
1. ORGANIZATION FOR PLANNING IN THE PACIFIC NORTHWEST[1]

Planning Activities Undertaken in the Pacific Northwest

Introduction—General Considerations

An organization for the planning of future public works and for the conservation and development of natural resources in the Pacific Northwest must be built upon the foundations that have been laid during the past 2 years. The challenge presented by the crisis situation in 1933, when the decision to begin systematic planning for meeting public needs was made, has resulted in a rich experience that requires analysis. It is for this reason that the analysis which is here presented includes a considerable volume of detail. From it we may hope to obtain clues for further perfection of a planning structure for this region.

It must be recognized at once that regional planning is indissolubly tied with State and local planning and that it ought to be articulated at many points with national planning. The chief achievements of the Pacific Northwest Regional Planning Commission thus far are probably to be found in the work of the State and local planning agencies. It will, therefore, be necessary to explore the structure and activity of these members of the planning family if we are to see the significant elements in the total regional planning situation.

The accompanying and previously published charts picture the general scheme of State, county, intercounty, and regional planning structure. It is therefore unnecessary to describe that structure save as it seems desirable to suggest alterations. Before we can judge the problems of structure it is desirable to summarize the planning activities which each of these levels of planning organization has been undertaking and to decide what the functions of planning should be.

The account which follows is not intended to present a review of the accomplishments of the planning movement in the Pacific Northwest. That can be best learned in the detailed reports of the planning consultants which have been filed with the National Resources Committee. Rather it is an effort to summarize the directions planning activity has taken, the emphasis given in the different States of the region, and the major problems of organization that have been revealed in the brief period of 2 years. The information used in this appraisal is not nearly complete, for limitations of time and staff have made it impossible to make a systematic and thorough review of the experience in each of the four States. If Washington and Oregon appear to be emphasized, it is because it has been more convenient to get at the planners and records in those States.

State Planning Activities

Physical and natural resource planning.—In every case the State planning agencies have given a large amount of attention to physical-improvement projects.

The two eastern partners in the region have been particularly concerned with water conservation and irrigation. It is well known that in both Montana and Idaho the characteristic aridity of climate has in these last years been accentuated and the agricultural crisis has been acute save where ample water for irrigation or stock has been available. In eastern Montana the depopulation of large areas of dry farms has made the problem even more difficult than in Idaho. Thus planning activities in the former have been coupled with water conservation and development—a fact which is clearly indicated by making the water conservation board the State Planning Board (though a different member is chairman for the latter). It is further indicated by the granting of a large State appropriation which is used for defraying the cost of project surveys, etc., for increasing water facilities. Idaho created a water conservation board in 1935 which expected to work closely with the State Planning Board, also placed upon a statutory basis by the same legislature. This agency is designed to do for Idaho what the similarly named agency is doing for Montana.

Montana was the only State in the Union which lost population during the decade of the prosperous twenties. This loss was 2 percent. Its difficulties were, of course, heightened by the general depression. Not only has agriculture been dealt a terriffic blow, but mining—its other great economic resource—came nearly to a standstill. Idaho shared both difficulties but its agricultural problem was not so acute since it has no large dry farm areas like those of eastern Montana. The planning emphasis in both State and local commissions, therefore, has been centered around proj-

[1] By Charles McKinley, consultant, professor of political science, Reed College, Portland, Oreg. The analysis presented here has been made possible only by the willing and friendly aid of the consultants, committee chairmen, and board members who are taking part in this interesting movement.

(PROPOSED) SCHEME OF ADVISORY-TECHNICAL ORGANIZATION FOR REGIONAL PLANNING

PACIFIC NORTHWEST REGIONAL PLANNING COMMISSION

REGIONAL ADVISORY-TECHNICAL COUNCIL

COMPOSITION :- CHAIRMAN
CHAIRMEN AND TECHNICAL ADVISORS OF DIVISIONS AND MAJOR SUB-COMMITTEES.
REPRESENTATIVES OF MAJOR SUB-AREAS OF REGION.
EX-OFFICIO :- CHAIRMAN, P.N.W.R.P.C.; CONSULTANT, P.N.W.R.P.C., TECHNICAL COORDINATOR, P.N.W.R.P.C. AND ADVISORY TECHNICAL COUNCIL.

TECHNICAL DIVISIONS	LAND RESOURCES				MINERAL RESOURCES		WATER RESOURCES					TRANSPORTATION					INDUSTRY AND COMMERCE				PUBLIC WORKS	PUBLIC WELFARE				EDUCATION	GOVERNMENT				MUNICIPAL PLANNING
SUB-COMMITTEES	LAND CLASSIFICATION AND USE	AGRICULTURE	GRAZING	FORESTRY			HYDROLOGY, WATER SUPPLY	POWER	IRRIGATION	FISHERY	WATERWAYS, NAVIGATION	TERMINALS	RAILWAYS	HIGHWAYS	AIRWAYS	MANUFACTURING	COMMERCE AND DISTRIBUTION		CONSTRUCTION		EMPLOYMENT	PUBLIC HEALTH	RECREATION			ORGANIZATION	FINANCE	LEGISLATION		
COMPOSITION OF DIVISIONS AND SUB-COMMITTEES	TECHNICAL DIVISIONS :- CHAIRMAN AND TECHNICAL ADVISOR (IF ANY) CHAIRMEN AND TECHNICAL ADVISORS OF SUB-COMMITTEES. REPRESENTATIVES OF CORRESPONDING STATE DIVISIONS.																													
	SUB-COMMITTEES :- CHAIRMAN, TECHNICAL ADVISOR (IF DESIRED) REPRESENTATIVES OF CORRESPONDING STATE COMMITTEES. REPRESENTATIVES OF FEDERAL AGENCIES CONCERNED. REPRESENTATIVES OF OTHER OFFICIAL, TECHNICAL, COMMERCIAL AND CIVIC GROUPS. REPRESENTATIVES AT LARGE.																													
PROPOSED EXECUTIVE SERVICE (BY NATIONAL RESOURCES COMMITTEE)	CONSULTANT OR DIRECTOR TECHNICAL COORDINATOR																													
							DIVISIONAL EXECUTIVES OR SECRETARIES																								

NOTE:

FOR PURPOSES OF PROVIDING REPRESENTATION ON A SMALL EXECUTIVE COMMITTEE FOR COUNCIL, AND OF PROVIDING EXECUTIVE STAFF SERVICES, TECHNICAL DIVISIONS MAY BE GROUPED INTO FOUR (OR FIVE) GROUPS, AS:

NATURAL RESOURCES { LAND / WATER
OTHER PHYSICAL RESOURCES
WELFARE
GOVERNMENT

COLUMBIA BASIN STUDY

PACIFIC NORTHWEST REGIONAL PLANNING COMMISSION

NOVEMBER 1, 1935

ects to alleviate what seemed an imminent catastrophe which threatened the existence of whole communities and jeopardized the solvency of public and private finance. The point of view dominant in Montana planning is clearly and poignantly stated in the remarks of J. S. James, State engineer and executive officer of the Montana Water Conservation and Planning Board, at the Pacific Northwest Regional Planning Conference, in Seattle, last December. He was commenting upon a discussion of reclamation and said:

I want to endorse, first of all, what Mr. O'Sullivan has said about reclamation in the 11 western States. There is no question that it is the life blood of these States, but I want to confess to a one-track mind. I keep coming back to the proposition that if we are justified in the expenditure of money and time to come here, we are justified because there is an immediate human need in our State, and it must be true in the other three northwestern States. Our immediate need to get people off relief—permanently off relief—is irrigation to supplement water for communities that are struggling along with an inadequate supply, facing slow starvation; it is water supply where it is possible to serve communities that have no irrigation now; it is water for small tracts to serve the use of range lands; but primarily, the purpose is to serve people in the communities or near the communities where they now are. We have too many people on relief. We have too many people that are pauperized, and it is unnecessary. We have the resources, and the resources where the people now are, to serve them. We can't talk about depopulating whole areas. We are talking about instituting a tragedy to run over for two generations. You talk about moving out the distressed dry-land farmers in an area. Whom do you move out next? The people in the small towns; then you move out the people in the big towns. You are destroying an investment in money, you are destroying an investment in people's lives. That has got to be avoided—and it can be—in distressed communities in the Northwest.

It seems to me we must concentrate as much effort as we can on this immediate problem, of saving these people in our State. The first thing, the one thing that we know that will do more than anything else to take people permanently off relief is the use of our water supply for irrigation, both supplemental supply and in limited cases on new areas, and that program is as ready to go as any program in the Northwest. It is planned. It is planned in general. It is planned as a program. Montana has had that plan and has presented that plan for a year and a half. We planned and have had a completed plan for a year and a half and we have taken no one off of relief.

Can't we concentrate this effort on this immediate human problem? We are taking care of 50 years from now if we are taking care of the people that are growing up now, if we do something to take care of these high-school boys who have been out of high school for 4 years, living on relief with their parents. If we destroy that resource now what good is navigation and power 50 years from now? I know it is a one-track idea, and it is the one thing in our State, and I believe it is a main thing in these other three States, that will start to serve people in their own communities; the development of small and large tracts of irrigation to take care of our human resource.

This view is shared in Idaho, particularly in the Snake River country.

In Idaho as well as in Montana there is also an acute desire for better facilities for mining. This has taken the direction of attempts to secure better and more complete topographic mapping, the assembly of all known information concerning mineral deposits, and the construction of mine-to-market roads to permit the prosecution of active mining in sections where transportation facilities, now lacking, can be made available at low cost. In this effort to bring mining actively into the realm of State planning, the organized mining groups, the mining departments in the educational institutions, and the minerals subcommittees of the State planning and local planning boards have united.

In the Idaho planning discussion recognition of the depletion of the supplies of white pine, especially in the northern section of the State, has been accorded, but little has been done either in State legislation or private operation of lumbering to deal with the problems presented by forest depletion. There is also in this State much interest in securing cheaper transportation to the coast, by highway construction leading to the Los Angeles and San Francisco metropolitan districts (which southern Idaho needs) and by the improvement of navigation upon the Columbia and the Snake Rivers. An east and west highway route through central Idaho, via Lochsa and Clearwater Rivers and/or by the Salmon River, is felt to be most essential.

The Federal Government owns the greater part of the land of both Idaho and Montana. Much of this land is best suited for grazing and timber. In southeast Oregon are vast areas of a similar sort. As a consequence the livestock men in these areas have need for water for stock and the State and local planning boards have accorded recognition to this in their recommendations.

In Washington and Oregon a larger emphasis has been placed upon flood control, power development, and new irrigation ventures. It is true that in northern Idaho—in the tricounty planning district—and in northwest Montana there are projects for flood control which the new planning agencies have been studying. But in western Oregon and Washington, on the lower Columbia, in the Willamette Valley, and on the rivers pouring into Puget Sound, there have been acute flood problems during each of the past two winters. As a consequence, the State planning boards and certain of the county boards have given much attention to this problem. They have also stressed proposals looking toward the conservation and exploitation of forest re-

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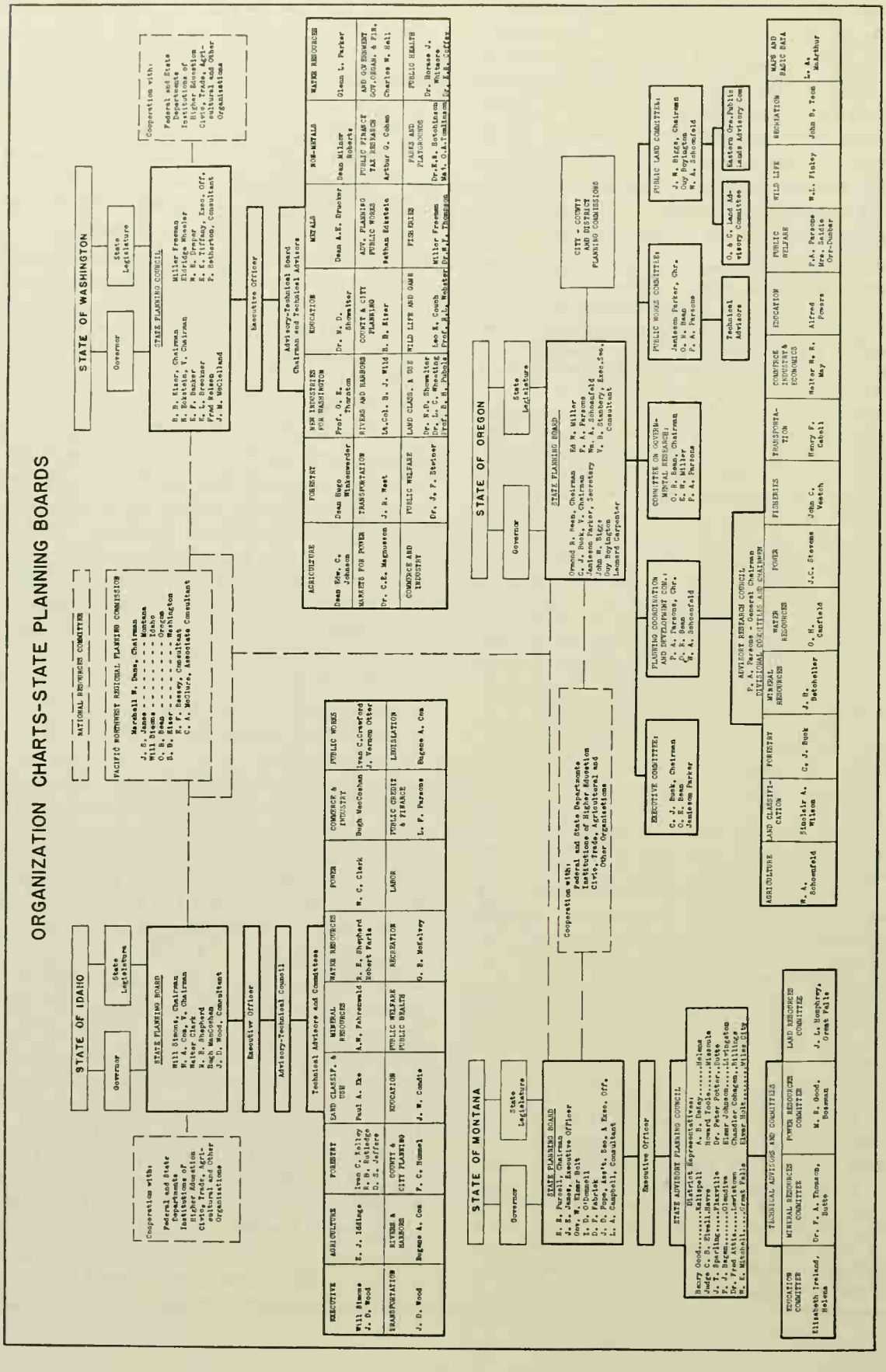
ORGANIZATION CHARTS-STATE PLANNING BOARDS
STATE OF WASHINGTON
Governor
State Legislature
STATE PLANNING COUNCIL
Executive Officer
Advisory-Technical Board
STATE OF IDAHO
Governor
State Legislature
STATE PLANNING BOARD
Executive Officer
Advisory-Technical Council
Technical Advisors and Committees
STATE OF MONTANA
Governor
State Legislature
STATE PLANNING BOARD
Executive Officer
STATE ADVISORY PLANNING COUNCIL
TECHNICAL ADVISORS AND COMMITTEES
STATE OF OREGON
Governor
State Legislature
STATE PLANNING BOARD
NATIONAL RESOURCES COMMITTEE
PACIFIC NORTHWEST REGIONAL PLANNING COMMISSION
Marshall N. Dana, Chairman
J. S. Jones - - - - - - - - - Montana
Will Sloane - - - - - - - - - Idaho
O. B. Dean - - - - - - - - - - Oregon
B. B. Riser - - - - - - - - - Washington
R. F. Bessey, Consultant
C. A. Mollure, Associate Consultant
Cooperation with:
Federal and State Departments
Institutions of Higher Education
Civic, Trade, Agricultural and Other Organizations
ADVISORY RESEARCH COUNCIL
P. A. Parsons, Chairman
Jeaderm Parker, Vice-Chairman
DIVISIONAL COMMITTEES AND CHAIRMEN
EXECUTIVE COMMITTEE
C. J. Buck, Chairman
O. B. Dean
Jeaderm Parker
PLANNING COORDINATION AND INFORMATION COM.
P. A. Parsons, Chr.
O. B. Dean
W. A. Schoenfeld
COMMITTEE ON GOVERNMENTAL RESEARCH
O. B. Dean, Chairman
E. W. Miller
P. A. Parsons
PUBLIC WORKS COMMITTEE
Jeaderm Parker, Chr.
O. B. Dean
P. A. Parsons
Technical Advisors
O. & C. Land Advisory Committee
Eastern Ore. Public Lands Advisory Com
PUBLIC LAND COMMITTEE
J. H. Bigge, Chairman
Guy Boylston
W. A. Schoenfeld
CITY - COUNTY AND DISTRICT PLANNING COMMISSIONS

Cooperation with:
Federal and State Departments
Institutions of Higher Education
Civic, Trade, Agricultural and Other Organizations

sources. The Oregon board has been somewhat more interested in the first aspect and the Washington council in the second. Both States have been active in work looking toward the utilization of the large amounts of hydroelectric energy to be released by the Bonneville and Grand Coulee projects.

Under the Washington Council's sponsorship important research work has been carried on by technicians on the State college and university staffs on such problems as house heating by electric energy, production of aluminum from Washington clays, etc. Laboratory research to discover ways of making commercially feasible the development of a variety of natural resources has been encouraged by the Washington Council, even though such discoveries would be equally advantageous to Oregon and to a less extent the other States. The Washington Council has also given much attention to the conservation of fisheries, particularly the salmon fisheries of Puget Sound.

This emphasis upon research looking toward the development and conservation of natural resources is partly due to the limited character of the law creating the Washington Planning Council. The broad scope of planning functions originally proposed was drastically trimmed and limited to the field of natural resources and commerce. Even within that field, the council was not given jurisdiction over waterpower resources or publicly owned electric utilities or with State-owned lands. Another reason for the research emphasis is the peculiar value which the chairman of the council and one other member have seen in research—a view which is reflected in the general attitudes of the council.

While the agricultural and forest experiment stations initiated some years before the systematic collection of land classification data, when the State planning movement got under way the Washington council quickly made land classification one of its major enterprises. The energy and grasp of the chairman and technical adviser of the subcommittee dealing with this work pushed this research program into a very prominent position, and led to an unusual list of achievements, of which the survey of present agricultural land use in Lewis County by the school children is not the least.

Subsequently this land-planning activity was extended, under the aegis of the Agricultural Adjustment Administration, the Land Use Section of the National Resources Board, and the Regional Planning Commission, so that it became a State and regional project of major importance. Each State has energetically pushed this basic phase of planning, and notable results have already been secured even though the program has still a long way to go before the major objectives will be attained. Each of the States shows some variation in emphasis in the phases of the work which are being stressed. Oregon has probably done a more systematic job of studying a few key aspects of classification in every county; Washington has pushed rather complete studies of some eight counties; Idaho has concentrated on school costs, tax delinquency, land ownership, and has made soil maps for something like half the counties. (We have seen no summary of the Montana work, although it is known that Montana was early in the field in this basic research and that it has covered practically the entire State.) While actual inventory work has slowed down in recent weeks, owing to the failure of funds from the Works Progress Administration to be released for land-planning projects, the land-planning consultants (now attached to the Resettlement Administration) are carrying their work forward in each State, as are the agricultural and forest experiment stations. The results of this work will be made available to the regional, State, and county planning bodies. So far as the county planning commissions are concerned, while some activity of this type is underway, they will need special technical aid either from the State planning boards, the Resettlement Administration, and other cooperating agencies, if they are to be of service.

The Oregon board has been functioning a much shorter time as an official agency than has the Washington council. While, prior to the organization of the present board, a voluntary planning council undertook a series of research projects, effective work was handicapped by the lack of legal status. (This may also be said of the Idaho board, although Idaho's voluntary planning board was created earlier and had official endorsement from the Governor.) The unofficial Oregon council did, however, assemble a large amount of valuable information concerning the natural resources of the State and was particularly successful in pointing out the lines which further systematic research, properly financed, should take. Its forestry division produced an outstanding report, so comprehensive in its analysis of the forestry situation and so definite in its recommendations that it made a distinct impression upon the 1935 session of the Oregon Legislature. That body converted a number of its proposals into statutes. Its committee on recreational planning has been outstanding among the four States in its delineation of the problems and possibilities of the natural recreational features of the State.

Little has been done by the Washington and Oregon boards in advancing transportation plans.

During the present year all of the State boards have acted as advisers to the Public Works Administration and Works Progress Administration administrators in the inventory and to some extent the coordination of work projects. Such matters are actually handled, except for a few outstanding matters, either by a member of the staff or by a subcommittee. During the last 5 months the Oregon State Planning Board has made a comprehensive study of the many problems involved in rebuilding the State capitol (destroyed by fire last spring). This study is probably unique in its analysis of the complex relationships of a capitol to the background, needs, and future development of the State.

Planning for social organization and control.—This subject lends itself to the following separate considerations:

(*a*) Government organization and public finance: The regional and State planning commissions have all been concerned with creating local planning agencies. They have sponsored legislation to create county and city planning commissions and, in the case of Idaho and Washington, for the creation of intercounty commissions. City planning commissions are now authorized in each State. In Oregon, despite the failure of the legislature to accept the bill which would have created official county planning commissions, the State planning board, with the cooperation of the Governor, has set up county planning boards in those counties of the State interested in having such an agency. To date there have been created in Oregon 28 such commissions.[2] The section least interested thus far in county planning commissions is the section which borders the Columbia River.

In addition to local planning organization, the State boards have given attention to other problems of governmental organization. In Washington the Public Health Technical Advisory Committee secured the endorsement by the State planning council of a proposal to change the system used in the appointment of public health officials on the basis of training and fitness so as to make for a career service. The Washington council has also discussed the need for reorganizing local government. However, thus far not much work has been done in the study of local government, although certain projects have been planned.

In Oregon, the voluntary planning council became very much concerned with the need to reorganize State administration and county government. As a consequence it sponsored a proposal which would have given the Oregon planning board direct charge of research in this field. This proposal was somewhat modified by the legislature. The net result was the creation of a special interim commission, for which the planning board is to furnish some funds, which in collaboration with the board is to study and report on the problems of State and local administration and the interrelationships between State and local government in Oregon.

In Washington considerable attention has been given to public finance. The subcommittee on education cooperated actively with certain legislative leaders in securing the permanent and stable basis for financing schools. It has also aided in reducing the number of school districts in the State from approximately 2,900 to 1,400. It has under way a program which looks toward the reduction of educational administrative units to 214. This program was designed to economize the resources for educational purposes and to secure more value for the tax dollar. At the present time a joint research program is being prepared by the Washington State tax commission and the State Planning Council.

In Oregon and Washington the planning groups have sponsored far-reaching schemes for reorganizing the administration of State and local agencies which care for the dependent and defective classes. In each case the plan took the form of a proposal for a State public welfare department which would have absorbed the activities of a number of State agencies and have integrated the work as between State and county in the care of people needing public assistance, including unemployment relief. In Oregon the proposal was defeated in the legislature; in Washington the legislature accepted essential items in the report.

(*b*) Industry and commerce: No important work in this field has been done by State planning boards. The special subcommittees have been relatively inactive in all the States.

(*c*) Educational planning: In Washington the subcommittee on education, in addition to the concern it has manifested in school finance (as outlined above) has aided in the construction of some 43 new schools and the improvement of 900 school buildings with funds obtained from the National Government through Federal Emergency Relief Administration, Washington Emergency Relief Administration, Public Works Administration, and from moneys advanced by State and local districts. It has also arranged for a plan of interchange of certification and qualifications of teachers among the States of the northwest and for the exchange of credits in the institutions of higher learning. Beyond that, its program is not yet well defined. The Oregon committee on education has done very little. There is one report made by one

[2] Oct. 15, 1935.

section of the subcommittee dealing with library administration. This has not yet been acted upon.

(*d*) The stimulation of local planning activities: All of the State boards have spent much time and some funds in securing the active participation in planning of city and county planning commissions. In Montana and Idaho this has taken a somewhat different development than in Oregon and Washington, through the creation of intercounty groups into planning organizations that deal with subareas of the State embracing a number of counties. Perhaps the most successful planning work that has been done in Idaho is the work of these sub-State regions. The reason for this planning activity is to be found in the topography of the State which centers agricultural activity in certain irrigated valleys that traverse a number of counties. These natural basins have, therefore, become the active centers of planning. Representation from the county planning commissions on these sub-State area commissions gives a federated structure to local planning in that State. The State planning consultant has spent a large part of his time helping these groups to get established and to carry on their work. In Montana a district supervisor, who is a member of the advisory council to the State planning board, acts as a stimulating agency for the county planning commissions in the 12 districts into which the State has been developed for planning purposes.

In the Montana set-up these supervisors constitute the active State planning agency. The official board, which is also responsible for the important and urgent water-conservation program, has delegated to this group of district representatives much of the work of carrying on State planning and directing local planning.

In Washington, new legislation, which lays the basis for city and county planning commissions, was adopted at the last session of the legislature. Since that time a staff member of the State planning council has given a good deal of time in response to requests from local planning groups by advising them what they might do and in guiding their work after it has been begun. Up to the present, the chief activities in which these groups have engaged are those relating to the preparation of projects for the use of Federal moneys connected with unemployment relief.

In the State of Oregon for the past 3 or 4 months the Planning Board has made a special drive to organize county planning commissions. One of its members has spent nearly all of his time during the late spring and early summer in this enterprise. The consultant of the board has devised numerous suggestions for these county groups, indicating what they might do and how to do it. The State board has held conferences in different sections of the State, largely to stimulate local interest in planning activity. The most recent of these was at Gold Beach, where the four counties concerned with the lower Rogue River valley were especially invited to consider the problem of conserving from spoliation the lower Rogue as a recreational area.

The State board undertook a special preliminary study of the questions involved in flood control, drainage, navigation, and supplemental irrigation in the Willamette Valley. It also outlined a comprehensive program of future development for the valley. This preliminary study doubtless played an important part in the allotment subsequently of a fund of $200,000 to the Army Engineer Corps for a complete study of the Willamette Valley situation.

(*e*) Publicity activities: All of the State planning agencies have devoted much energy to publicizing the planning idea. As in the case of Oregon, frequent meetings have been held in different parts of their respective States for this purpose. Individual members have engaged in public speaking activities with the same objective in mind. Staff members have gone from community to community partly with the purpose of selling planning to the people in the State.

We will discuss below the reason for this activity and what its significance is in a planning scheme.

Cooperation with the Regional Planning Commission.—Since the Regional Planning Commission of the Pacific Northwest is a federation of the four State planning boards plus the chairman of this district for the National Resources Committee, it is obvious that State planning groups have presented many of the questions that are considered by the regional planning commission. The achievements of that agency will be indicated hereafter.

County Planning Activities

County planning commissions are still fairly young in both Oregon and Washington. Some were organized in Washington and Montana over a year ago on a voluntary basis. In the former State an act was passed early in 1935 which permits county and intercounty planning commissions. In Idaho they are also now on a statutory basis. This leaves Oregon and Montana as the States with voluntary planning groups. The original movement to create county planning commissions was started (with the encouragement of the National Planning Board) by the Regional Planning Commission office which assigned the associate consultant to this enterprise. The regional office has circularized the county groups with outlines explaining

the nature of the activities in which these commissions might engage. One of its circulars reads:

> There are two phases to county planning—(1) the long-term comprehensive plan for the entire county, covering all resources and activities, and (2) the plan for meeting immediate needs and requirements.

It indicated that planning activities should center around the discovery of the county's resources and how they might be best conserved and developed. It divided the planning task into the six following fields of study:

1. *Land resources.*—Economic use of land (for residential, agricultural, commercial, and recreational purposes), agriculture and its production, soil conservation, forests and timber, minerals, wildlife preserves, etc.
2. *Water resources.*—Precipitation, stream flow, domestic and public supplies, irrigation, flood control, power, navigation, fishery, waste disposal, stream purification, etc.
3. *Transportation.*—Highways, railroads, grade separations, waterways, airways, and their ports and terminals.
4. *Other utilities.*—Power and communication lines, etc.
5. *Public welfare.*—Facilities for recreation, housing, distribution, and location of population and industries, health and sanitation, education, safety and protection; also economic, social, and administrative problems involving employment, relief, finances, government, taxation, etc.
6. *Other physical improvements and public works.*—Miscellaneous physical improvements, structures, and facilities, and public works plans and programs in general.

Actually in the work of the county planning commissions thus far the chief concern has been to prepare a list of projects to receive Federal moneys for aid in unemployment relief. In this task the commissions have been irregular in their performance, depending somewhat on the energy of particular personnel and on the assistance of technically trained county or city officials who might aid them in scrutinizing, comparing, and suggesting desirable projects. Some, as in the case of the Crook County, Oreg., Planning Commission, recently organized, found it very difficult to do even this task because of the absence of technical and clerical assistance. To make the surveys and prepare the maps needed in this work could not in this case be done without relief moneys being made available for employment of technicians, since the county had no engineer. There can be little doubt that up to the present the vision of Federal works money has been the chief motive impelling the counties to create planning commissions.

In many Idaho and Montana counties, the crisis problems identified with the need of supplemental water for irrigation and for livestock have made the task of selecting worthwhile projects for work relief fairly easy.

The State consultants report a growing interest on the part of county commissions in the basic and long-time planning problems. In Washington the land classification survey undertaken in Lewis County was developed through the active cooperation of the Lewis County Planning Commission. In Clark County, this same kind of activity has been pushed. It is said that practically all the counties in Idaho at the present time are ready to start land-use studies. These are excellent examples of the growing appreciation of the need of basic information looking toward a permanent county planning commission which would make use of this information in zoning and other activities.

An illustration of Idaho County planning work is given in one of the consultant's progress reports as follows:

> Fifty percent of the county and city planning boards have considered a preliminary 10-year program for Public Works. . . . One county planning board has initiated and consummated a 100,000-acre submarginal land purchase plan project involving 123 families.[3] This project was sponsored by the Oneida County Planning Board and was the result of full cooperation of the local unit with the Agricultural Adjustment Administration under the guidance of the regional director of the A. A. A. and the general direction of the land-planning consultant. Much of the actual field and office work in developing this project was done by voluntary contribution of planning board members and local officials. One county planning board is developing through cooperation with the Idaho Emergency Relief Administration, Rural Rehabilitation and Works Division, and the State agricultural experiment station, a rural rehabilitation project involving approximately 70,000 acres of cut-over timberlands, partially cleared but in uneconomic farm units. Relief funds will be spent in permanent benefit in the making of economic farm units.

The same report indicates that the county and intercounty groups were chiefly interested in land-use adjustment and water supply for supplemental irrigation.

In Montana a similar report made by the Montana consultant relates:

> Twenty counties have submitted maps which are remarkable and comparable in detail to similar technical maps prepared by Montana State College. Each map gave the following general information:
> 1. Areas suitable for grazing use only.
> 2. Areas suitable for continuous wheat production.
> 3. Areas suitable for combination of dry-farming and ranching.
> 4. Areas adequately irrigated.
> 5. Additional land that could be irrigated.
> 6. Areas suitable for timber production only:
> (*a*) Commercial timber.
> (*b*) Recreation and noncommercial timber.
> 7. Existing storage reservoirs.
> 8. Possible storage reservoir sites for stock water.
> 9. Opportunities for developing flood irrigation projects of community value.

[3] This project is now under way.

10. Areas needing irrigation.
11. Areas where new families may be located on a self-supporting basis.
12. Irrigation districts needing refinancing.
13. School districts that might be consolidated—work which is well under way at the present time.

One of the most successful county planning groups in Oregon is the Clackamas County Planning Board. This group has done a first-class job of studying public building needs, including school needs, in Clackamas County, and preparing a financial program for district and Federal participation in construction. It has also made a study of the highway situation in the county, and has so demonstrated its grasp of highway matters that it not only secured a change in the program of the State highway commission relating to principal highway arteries, but it has been made, by the highway commission, a permanent advisory agency in all State highway questions in Clackamas County.

The Clackamas County board has sponsored a project for basic map work in the Molalla Valley, looking toward the creation of flood-control and irrigation projects. It stimulated the organization of conservancy districts for flood-control work. It now has three engineering parties in the field engaged in topographic survey work.

While the subcommittees of this commission up to the present have worked on the emergency tasks related to Public Works projects, the commission has discussed and is preparing to develop a permanent subcommittee scheme based upon long-time planning tasks, as soon as emergency matters are out of the way.[4]

Intercounty (sub State-Regional) Planning Activities

In Idaho the work of intercounty planning groups has been of great importance. What these groups have done is illustrated by the following excerpt from an account transmitted to the Idaho State Planning Board, by W. P. Hughes, consultant, in his discussion of the work of the Central Idaho Planning Board—the joint product of Lewis, Nez Perce, Idaho, and Clearwater Counties:

> The Clearwater River and its tributaries traverse these four counties, with Lewiston in Nez Perce County as an outlet, located at the confluence of the Snake and Clearwater Rivers. This board has taken an active part in an effort to open the Snake from Lewiston to the sea, on which a hearing is to be held this fall or winter. Topography knits these counties closely together and necessitates closely related activities which are of mutual benefit, and the closest coordination is necessary for the success of all undertakings. At the present time this board is pushing vigorously the securing of right-of-way on an important link of the Lewis-Clarke highway from Greer to Kamiah, and it is through their efforts that a transient camp has been set up on one end of this project near Kamiah. The board secured special equipment for the job from the State highway department. There has also been some study given to rural electrification.
>
> Nez Perce County is the leader of the central Idaho group and principal sponsor of its projects. The Nez Perce County board is carrying on studies in school consolidation, transportation, and bridge locations for main arterial highways, also toward the elimination of many highway districts.
>
> * * * This board is also submitting a project to the State planning board covering an "Economic and Latent Resource Survey", covering the 10 northern counties. This work will take care of a "white collar" group on important statistical work and it is hoped that it will have the endorsement of the State and regional planning boards.

In northeastern Idaho 10 counties created a Northeastern Idaho Planning Commission on which are represented each county planning commission and the chief towns in the region. This group has prepared a 10-year program of general development for the area, dealing with natural resources and market facilities.

In another three-county district in Idaho, studies are going forward on a major flood-control problem.

Another interesting group is the Palouse Interstate Planning Commission which was made up of representatives from Whitman County, Wash., and Latah County, Idaho, together with members from the principal towns in the two counties, and the University of Idaho, and the State College of Washington. So far the work of this planning commission has been fact-finding, and little has been done with the facts assembled. It has a subcommittee organization dealing with natural-resource subjects and with industry-commerce, education, public works, public welfare, etc.

Regional Planning Commission Activities

Coordination of planning functions.—Each of the State planning boards has its own technical and advisory committees. While there is some variation in the division of subjects covered by these committees, the pattern is very much the same. Technical subcommittees which work in the same field have need to know what each is doing, and how it is approaching its task. If the data developed by these research units are to be comparable, at least the plan for recording data should be the same in each State. Frequently also the methods of research can profit by standardization, and certainly very much by exchange of experiences. There is, therefore, very definite need for an articulation between the technical subcommittees

[4] One of the most illuminating sources of information concerning the county planning commission development is a statement of Dr. Philip A. Parsons covering this situation in Oregon. This is in the files of the office of the Regional Planning Commission.

of the four States in the planning structure of the regional planning organization. It has been intended to achieve this articulation by making the personnel of the regional subcommittees dealing with the same subjects as the State committees include membership from each of the State committees.

Successful articulation has not been achieved, except in two divisions. These are the water resources committee and the land classification and use committee. The reason for this failure to realize intentions is almost wholly due to the lack of funds to pay the expenses of meetings for regional subcommittees, and for executive service. On the whole the State representatives whose homes are not convenient to meetings at Portland have found it impossible to attend the meetings of the regional subcommittees, for they would have to pay travel and other expenses from their own pockets. In the case of those members holding Federal or State offices, which make provision for travel expenses, attendance has been possible. Perhaps that is the reason why the water resources committee, whose chairman is the division representative of the Corps of United States Engineers, has been able to prepare a very worth while report. In his official capacity, covering a similar field of activity, he was able to keep in touch more closely than were other committee chairmen with the activities of the corresponding divisions of the State technical advisory committees.

The second exception indicated above was made possible by the employment of Rex E. Willard and H. H. Henry, regional land planning consultant, and the four State land planning consultants, by the National Resources Board and other Federal Government agencies. This group has been in an exceptional position to articulate the land planning work of the technical advisory committees in each of the States.

Oregon and Washington committees on fisheries and forestry have been successful in keeping advised of what each other is doing. This has been due partly to the fact that the head of the forestry subcommittee of the Oregon Planning Board is regional forester, and in connection with his other work he has found it possible to carry on discussions of the forestry planning studies with the chairman of the Washington committee dealing with the same subject. In the case of the fishery division, the chairman of the Oregon committee is also an official of the State board dealing with that subject, and the chairman of the Washington subcommittee is a former member of the International Fisheries Commission. The chairmen of these two committees have been able to talk over joint fishery needs. Other members on the subcommittees, however, have not been able to meet because of the expense involved.

At the annual regional conferences, which will be described below, quite a number of members of subcommittees have found it possible to gather once a year. At such occasions there has been a more complete mingling of the personnel of these different State groups than at any other time.

Coordination has also come about to some extent through the peculiar membership of the Regional Planning Commission. Four of the five members are chairmen of the State planning boards. Nevertheless these meetings have not been sufficiently frequent until the last 8 months to care for the needs of coordination which might be served at such gatherings. The chairman of the Washington board complained of this infrequency as late as the meeting of December 14, 1934. He pointed out that important matters were handled by mail without the opportunity for discussion, which caused the rushing of decisions. Since that time, the meetings of the Regional Planning Commission have been held more often.

There has been one joint meeting of the entire membership of the Oregon and Washington Planning Boards. Obviously this is impossible as a regular method of securing coordination. Its chief function is that of getting personal acquaintanceships established and the creation of warmer feelings of accord.

Perhaps the most effective device for coordinating the planning activities in the four States is the meeting of the consultants' staff which occurs each time a Regional Planning Commission meeting is held. The staff meets the day before the Commission itself meets and goes over the probable business which the Commission will consider, develops essential information about this business, crystallizes tentative proposals that may be recommended concerning business, and then adjourns. There is not time on these occasions for all the staff to go into the problems and difficulties and needs which each State has experienced. One of the consultants complains of his isolation from knowledge as to what the other States are doing. He says that there is no time at these Regional Planning Commission meetings to explore the many things by which he is troubled or to compare notes, with sufficient fullness of detail, on ways of doing the job. It is true, however, that the Regional Planning Commission staff receives reports, suggestions, and information from the four States, most of which it passes on to each consultant. Yet from the point of view of this consultant, that is not an adequate substitute for leisurely, frequent, personal intercourse among the State planning consultants. Here again the barrier to coordination is largely lack of staff, which is traceable to lack of funds.

Another phase of coordination which needs special emphasis is that between the planning programs of the different Federal departments in the Northwest region. It would seem elementary that the Regional Planning Commission should become the principal coordinating device for planning activities among the Federal departments operating within that region. Nevertheless this elementary objective has not been achieved except in a few situations. The exceptions are due to the presence on the advisory technical committees of certain Federal officials. Where this articulation in the planning organization does not exist, it is not possible to achieve coordination in planning, since there is no other way in which knowledge of impending Federal activities may be gained by the Regional Commission staff. This probably cannot be cured until some definite provision is made in law for the prior consultation with the Regional Commission and its staff by each Federal agency operating within the region. Only partial and fragmentary coordination will occur under the existing status of the Regional Commission. Probably also this difficulty raises a similar query as to the status of the National Resources Committee as the central planning mechanism. It seems obvious that much of the knowledge about the planning activities of Federal bureaus and departments which are in prospect must first come from the National Resources Committee to the Regional Planning Commission. If the former agency has not arrived at a situation where it may expect such information to be systematically and regularly given it, the Regional Planning Commission, is bound to achieve only partial success in its work.

At this point it will be necessary to arrive at a clear-cut decision as to the scope of planning activities to be assumed by the regional commission. At present these appear to trail off into the vague hinterland of social controls even though in actual behavior this hinterland has scarcely been entered upon.

Physical planning for the Pacific Northwest region.—The regional commission itself, has undertaken only one major physical planning enterprise; namely, the Columbia Gorge study. In a sense this is a two-State committee task because it is of primary concern to Oregon and Washington. The purpose of the work has been to prepare a plan for preservation of the scenic and recreational values in the gorge which the Columbia River has cut through the Cascade Mountains.

The major public works now in progress along the Columbia River were planned by the Bureau of Reclamation and the Corps of Engineers, before the regional commission was started. The commission's functions with regard to these large development projects have been limited to endorsing them. For example: It has endorsed the navigation program, recommended by the Corps of Engineers; it has endorsed the change of the Grand Coulee Dam from a low dam to a high dam; it has endorsed a canal leading from the lower Columbia River to Puget Sound by way of Grays Harbor when economically justified; it has endorsed a flood control study and program covering the lower Columbia, certain of its upper tributaries, the upper Missouri and the rivers pouring into Puget Sound; it has endorsed the irrigation projects proposed by the Reclamation Service. In all of these instances the regional commission did not, itself, make the research studies that underlay these proposals. In many of them, its staff did not review in detail and prepare a report upon the research made by others. It has had to rely, in general, upon cursory review and upon the background and experience of its membership, staff, and advisers.

This limited type of planning is intimately related to the small staff and the inability of the regional commission's subcommittees to become genuine research and planning groups. This is due to lack of finances. The regional commission has attempted to prepare projects for the study of data essential to proper physical planning and it has made requests for comprehensive research work in the field of land classification, mineral surveys, topographic mapping, power use, and industry.

From this brief summary of the relation of the regional commission to physical planning for the region, it should be clear that the commission must be further organized and implemented in order to become an effective initiator of comprehensive proposals for regional physical development or natural resource conservation.

The creation of planning organizations.—The growth of State planning commissions in the four Northwestern States is largely the outcome of the work of Marshall N. Dana, regional representative of the National Resources Committee.

Oregon officially was slow to respond to the idea, and the Idaho commission, although appointed and functioning to a limited extent, was not put upon a permanent basis until 1935. Since the regional commission was organized it has played a very active part in devising the committee structure for the State planning boards and in building up procedures for planning activity. This was facilitated by the financial assistance rendered to the State boards by the National Resources Board, which furnished funds for part-time consulting service to the State commissions.

We have indicated above the part taken by the regional commission staff in promoting county planning

44831—36——12

commissions. The associate consultant also aided in organizing city commissions in all the major communities in the States where such commissions were lawful. Probably a good deal of this activity has not proved fruitful because many of the city agencies thus created have since become inactive.

Publicity for planning and for promoting the regional idea.—The most spectacular promotion activity, and perhaps the most important, has been the annual regional planning conference—one held in Portland and one in Seattle. This has attracted attendance of members of the technical advisory subcommittees of both State and regional planning boards and persons representing Federal, State, and county governmental agencies, and civic and business organizations, together with many citizens who are interested in planning activities. To these meetings have come persons from Alaska, British Columbia, and various parts of the United States. Approximately 800 people attended the last meeting.

The technical advisory committees prepare programs for discussion and at the conclusion of the session recommendations and resolutions are made which are poured into the general conference for acceptance or rejection. It is a forum for gaining public attention for planning problems and activities going on in the four Northwestern States. Sessions have been regularly reported by the press, and there can be no doubt that the conferences have served to popularize planning interest and to create a wider concern with conservation and development of the Northwest regional resources. It is impossible to measure the results of this kind of activity; but all those connected with the movement feel that the conference has served the double purpose of creating public interest in planning and in the regional idea and of assisting the planning groups and their subcommittees by giving them a feeling of popular support. Doubtless also, some opportunity has been afforded for the comparing of notes by the planners themselves. There is no question that the first regional conference performed the signal service of locating those persons interested in planning who could be drafted into the organized-planning movement.

There are certain drawbacks to such an agency that in time will have to be recognized. The adoption of resolutions which are carried no farther, as has frequently been the case, may cool the enthusiasm of those with a definite planning interest. It is also probable that, where in such a meeting many discussions are proceeding simultaneously and many resolutions are presented, it is impossible to focus public attention very sharply upon one or a few major issues. The diffuseness of the conference thus may handicap the planners unless some other way is discovered of selecting a few major issues for continued and sustained publicity.

Another form of publicity which has been created by the regional commission is its monthly publication, "The Planning News." While sent to all persons actively participating in State and regional-planning work, it is also designed to interest the layman and thus to fortify the planning movement.

The policy of holding the regional commission's meetings in different cities of the Northwest is another device which has enlarged the area of publicity for the regional commission's work. Incidentally, it may play a part also in creating a feeling that the Commission does not belong to Portland, but is instead a regional body.

The chairman of the Commission and the consulting staff, together with the State chairmen, have spent much time in public-speaking activity. If one is to judge by the press comments, there has been an appreciable development of public interest in planning as a consequence of the publicity activities of the regional commission and of the State boards. There has been also a distinct increase in the consciousness of regional ties and there appears to be a moderation of sectional jealousies. It is quite clear that this objective has not been fully reached and that much remains to be accomplished; but regional unity and regional drives for planning activity have gained great headway.

The Functions That Should Be Embraced in Planning

Summary of Functions Undertaken

Let us restate in summary form the range of functions undertaken by the planning agencies in the Northwest.

First, there has been the inventory of physical resources in the endeavor to discover more accurately what the States of the Northwest contain in the way of minerals, water resources, etc. Along with this has gone some work of distinct importance looking toward the conservation of resources, particularly of the soil, timber, and water. Some attention to the conservation of these physical elements as related to recreation has been given. Not much consideration as yet has been given to the conservation of minerals. Planning has also concerned itself with emergency public works, financed out of the Federal funds, and with questions of irrigation, roads, etc. Certain of the States have spent a good deal of effort in their research looking toward the exploitation of resources such as aluminum, metals, agricultural products, and markets for power. Very worthwhile basic research in land classification and use has been well started. In the realm of social

planning, much attention has been given to plans for planning, manifested by the drafting of planning legislation for State and local agencies. Some attention has been given to governmental reorganization in Oregon and Washington. This is still in the proposal stage with nothing yet really worked out. One exception to this statement is in the case of Government agencies to deal with the unemployed and dependent groups. On this phase of Government structure, two far-reaching proposals for reorganization of State and county agencies, dealing with these public-welfare activities, have been made.

The subcommittees assigned to the topics of industry and commerce have accomplished very little. So far as the discussion of these matters has gone, except for the views expressed by a few at the regional planning conference, the majority of the people assigned to these subcommittees, naturally enough, still has what may be called "the chamber of commerce" point of view. At the last regional conference, the slight attendance at the sessions of the division of industry and commerce was remarked upon by the chairman at the final general session. His report also contained the following statement:

> The view was expressed that in the development of regional planning thus far in the Northwest, there has been much broader application to technical questions such as those having to do with the management of fisheries, the exploitation of minerals, and the classification of land, than there has been in the broad economic considerations essential in the effective application of these techniques as elements in a well-balanced regional program.

Should the State planning subcommittees become active, it is probable that they will do a more systematic job of the same sort that chambers of commerce research departments customarily attempt. No move has yet been made to study industries with reference to their relation to a balanced national economy, or with respect to their wage standards, their ability to give steady employment, or their employer and employee relationships. Public-welfare planning has been confined practically to the proposals for public-welfare departments indicated above. A rather elaborate classification of possible public-welfare activities has been worked out by the technical adviser, of the Oregon subcommittee, in charge of this subject. Nevertheless nothing else of importance has been accomplished.

Relation of Planning and Public Opinion

There are distinct limitations to the scope of planning that are implicit in the democratic hypothesis. In the last analysis public opinion must be at least acquiescent and receptive to the functions the planners undertake or the planners will be looking for other fields to conquer. There is some flexibility, however, which depends upon the moods that coincide with periods of depression and periods of elation—which we call business prosperity. This flexibility works in both directions, expanding in periods of depression and tending to contract when the opposite mood is present. No one can be sure precisely what the public opinion status is at any given time, for there are no accurate recording instruments until elections come around and express this indirectly in the behavior of public officials. Even then the motives of the electors are often obscure and there is large leeway as to what particular lines of policy public officials will follow. Moreover such meters of attitude as can be read—the press, the expressions of chambers of commerce, of grange leaders, of labor unionists, etc.—have not been systematically examined for this study because of lack of time and funds for this purpose. It is, therefore, a hazardous business to attempt to set forth either what public opinion now will accept or what it may accept during the next 10 or 20 years.

Nevertheless, it is essential to our consideration of the future of planning in the Northwest, and the kind of organization which it will need, that an effort be made to chart the opinion tendencies and probabilities. We may note already a certain change in the mood under way from that which prevailed when the State and regional planning structures were inaugurated in the Northwest. There is a recession of the concern for the economic crisis, and, as a consequence, a slackening off of interest in those elements of planning which look toward broad human purposes. This has been expressed in private by a number of persons identified with the technical subcommittees. They complain of a certain fatigue which has come with this recession of the crisis. While there are doubtless other causes contributing to this fatigue, the change of popular mood is probably one cause.

But to see our problem, it is desirable to go beyond these short-term fluctuations of attitude and attempt to discover what underlying permanent traditional attitudes characterize the thinking and feeling of the people of the Northwest. By permanent, we simply mean those more stable attitudes that change gradually over long periods of time. These may be reinforced or disintegrated to some extent by shorter swings of intense feeling which coincide with depressions, but they tend to persist and, therefore, are basic to any permanent planning program.

Among these elements that furnish rootage to planning activities are, first, the attitude toward the conservation of natural resources. This has become a traditional view accepted by large masses of people throughout the Nation and throughout the Northwest.

It goes back for a period of approximately 40 years. In the Pacific Northwest people interested in conservation have a heightened awareness of its fundamental importance because of the very richness and profusion of natural advantages with which it is endowed. This awareness perhaps is most complete in those sections dependent upon forestry for their economic sustenance. There is also a wide interest in the conservation of fisheries. There is less concern with the conservation of minerals. In most sections of the Northwest there is an acute concern for the conservation of water. In the thinking of the people of this area, soil conservation is a rather recent idea, and it is difficult to know how well it has been established in the few months of publicity given to this problem, although the activities now being launched by the Soil Conservation Service may play an important part in driving home a widespread interest and knowledge within a short time.

But within this area there are also deep-seated antagonisms to conservation. This is an attitude which grows directly out of the pioneer period, and the Pacific Northwest is still remarkably close to the pioneer era. That was an era of exploitation. The rewards of money and prestige went, in that era, to the man who could most successfully rob nature. This is rugged individualism at its height. The fact must never be forgotten that Montana, Idaho, and Washington are States which entered the Union less than 50 years ago. Their settlement and exploitation have been accomplished by men and women who still, for the most part, live and play important roles in the business and political life of their communities. Men whose attitudes toward natural resources were formed in this pioneer conquest are exceedingly slow to change their beliefs. Many of their sons and daughters share the same optimistic individualistic faith. This fact has been made amply clear time and time again in the recent hearings conducted by the chairman of the Regional Planning Commission and his special staff.

In this situation of conflicting attitudes, there is a fair chance that the demand for conservation of timber, water, and perhaps other resources will become dominant. Certainly the imminence of economic disaster, connected with the present policy of "lumbermining", is so great and so important to the future of these four Northwestern States that it should furnish a sound basis in popular belief for planning for conservation. The road open to planners here seems reasonably safe though far from smooth.

Secondly, there is basis, as already indicated, for planning activities looking toward further exploitation of natural resources. This has already been widely acclaimed by those who are "in" on the planning movement. Whenever the planners investigate, as they have done in a number of cases, the possibilities of finding new applications of cheap electric power to mineral exploitation, they will be enthusiastically embraced. There is a great interest, also, in the discovery of new forms of fabrication for the timber resources of the area, such as paper and cellulose products. Research in those directions by planners will be actively supported by the chamber of commerce tradition, by the farmer organizations interested in markets, and probably by working-class groups concerned with more jobs.

That phase of physical planning which has been concerned with land classification and utilization is quite new to the Pacific Northwest. Nevertheless it has already developed a great deal of popular interest. This seems likely to last, if real estate remains somewhat depressed, or does not enter upon another boom period. Should the latter occur, a good deal of the support for this work probably will be withdrawn. There is a permanent factor influencing public thinking about land use, the prospect of a continuing excessive cost for the support of public schools and roads in many districts which ought not to have been opened up for settlement. Buttressing that influence is memory of the drought experience in Montana, parts of Idaho, and parts of eastern Oregon and Washington. This will reinforce the other tendencies, increasing popular concern, particularly if the dry cycle remains for some time. It seems probable that out of this recent interest in land use, there will develop a sustained concern for land planning including possibly the desire for rural land zoning. The latter, of course, will become a matter of fundamental importance to the continued usefulness of county planning commissions.

That phase of the physical planning of States, counties, and the region that most nearly resembles the city planning is the planning of transportation facilities and utilities. Here there is probably a well developed popular basis for planning activity. It is true, however, that the planning for important elements of a general highway system has been handled thus far by State and Federal departments. These State departments are well established, well financed, and have their roots deeply embedded in State and local politics. Thus far they have shown considerable anxiety over possible interference with their functions by the State planning boards. Should this continue, planning for highway transportation would not be an important function of the separate planning commission, although it might have much to offer that would be pertinent to the broad base for highway planning. If the Federal Bureau of Public Roads remains as a supervising agency for the distribution of grants in

aid to State highway development and if the Federal Government continues its policy of heavily subsidizing State roads, it is possible for the National Government to persuade State highway commissions to make more use of the special services of State and regional planning commissions.

Planning for waterway transportation is already under Federal domination. Here the major difficulty would seem to be the relating of the work of the Corps of Engineers to the Regional Planning Commission and the determination of a national policy concerning waterway development. In this the National Resources Committee should play a major role. There are in the Northwest region conflicting attitudes between the supporters of the railroad companies, their staffs, and most of the farmer and merchant groups along the Columbia, Willamette, and Snake Rivers. It seems probable that so far as regional sentiment is concerned, the antirailroad point of view will become dominant. This has already been manifested whenever the railroads clash with the trucks over policies of highway development and taxation.

The other utility question which planners will be chiefly concerned with is that of the development of hydroelectric energy and its transmission. At the present time there is a strong and probably growing belief in public ownership. The existence of the Tacoma and Seattle municipal enterprises and city-owned plants in a number of smaller cities is an important basis for this attitude. The part played by public ownership and distribution of power in both Washington and Oregon politics during the past decade has been very important and evinced strong popular foundation for planning activity in this field. There is, at the same time, bitter resistance to this point of view and the movement will be contested hotly each step of the way. There will be times during this contest when planners will not be able to convince the combatants of their full neutrality. The sections of the present report, of which this discussion forms a part, which deal with the form and scope of an operating agency for the electric energy released at Bonneville and Grand Coulee will illustrate this difficulty. Nevertheless if planning is to have significance such risks must be assumed.

It is unnecessary to point out the solid foundation in public belief for irrigation development. That is well known and is characteristic of the entire Northwest area. The planners' problem here would be to relate this type of physical planning activity to the national situation involving the amount of agricultural land available.

Flood control is a matter of general appreciation in Oregon and Washington, west of the Cascades. There has already been much study and some action taken in this field by the Corps of Engineers, which is the Federal planning and executing agency, and by the various State Planning Boards, and the Washington State Department of Conservation and Development. There is ample basis in popular attitude for remaining in this field. Nevertheless there may be vigorous disagreement whenever the National Government develops a consistent general policy concerning the sharing of the expense with local groups benefited by Federal flood-control activity.

Planning for construction of public buildings needed for Federal, State, and local government purposes is a function that is not well-founded in popular conviction. So long as Federal aid from Washington remains an important source of funds for such construction and the Washington authorities desire the participation of the planners in working out programs for public buildings, regional sentiment will acquiesce. Prior to the last 3 years, the few city planning commissions in this region were not able to make much impression on the public or city officials concerning the location and kind of public buildings to be constructed. This is the only important test of popular tradition on this subject. It is likely that public officials will continue to prefer their own judgment and evade the use of planning agencies unless there is some Federal compulsion, whenever Federal funds are furnished to aid State and local governments in meeting their building needs. The importance of this phase of planning activity, of course, is very closely tied to the question of the rate of population increase. Should there be, as suggested elsewhere in this report and in the conclusions of the National Resources Committee, a slower rate of population growth than has characterized past decades, this phase of planning will diminish in significance.

Social Planning

We turn now to a consideration of how far into the field of social control planning agencies may expect to enter. Planners in this region were quick to realize the intrinsic importance of administrative organization and governmental structure to their work. In their subcommittees and in their discussions the boards evinced a concern with the development of a competently staffed public service and an integrated administrative structure for handling public business. This concern came from their appreciation of the difficulty of making coordinations out of continual administrative disorder. It is almost an insuperable task to plan for the relating of similar functions when the administration through which these functions must be carried out is so disintegrated that the actual work of

fulfilling the functions is perpetually unrelated. It is also exceedingly difficult to get comprehensive data needed to see a broad governmental problem from a variety of administrative sources which are partly duplicating the work of one another. As a result, there has been much concern among planners of the Northwest region about the reorganization of the administrative structure of State and local government.

There has also been a good deal of interest in the problem of rationalizing the organization of Federal bureaus that operate within the Northwest region. This is of particular interest to the regional planning commission. If that agency is to play an important part in the coordination of plans for conserving and developing natural resources and other physical improvements, it must have a Federal administrative mechanism which roughly coincides with its jurisdiction. It must also be concerned with problems of overlapping and gaps in administration since these vitally affect the results of planning. It is especially concerned with the degree to which the established Federal agencies possess local and regional autonomy. If the Government at Washington must approve all important decisions that are made by their representatives in the Pacific Northwest region, it means the slowing up of the planning process. At the present time there is a great variety of practice among the Federal departments as to how far the bureaus are centralized in Washington or decentralized within the regional field. The regional planning commission as a coordinator will succeed in proportion to the way its coordinating work is facilitated by the national administrative bureaus. It is impossible to know what headway can be made in changing the Federal structure. This is not a problem of regional public opinion primarily.

If the State planning commissions make a frontal attack on the questions of Government organization, they place themselves in jeopardy. This is true because the legislature upon which they depend for their continued existence has a vested interest in the perpetuation of administrative disintegration. Each member of the legislature, under our American system, depends upon the support of localities for his continued election. In this support he finds the present arrangement of State and local government structure much more of an asset than a handicap. The history of efforts in Oregon to modify State administrative structure runs back nearly 30 years. It is replete with failure to make significant headway during that time against the vested interests in the present scheme that find lodgment within the legislature. An opposite tendency toward this sentiment is developing and is being expressed through such agencies as the leagues of cities and the pressure of a few of the economy groups, but the latter are usually not much concerned with fundamental matters in governmental machinery.

In the State of Washington, State administration has been partly integrated. The same thing is true in Idaho; but in the filling of State positions in all four of these States, as in so many others, the spoils tradition is dominant and shows little signs of disappearance.

The city-manager movement in Oregon is a factor in favor of local government improvement, but the organized forces of the county and State officials are still too powerful to admit, in the immediate future, of much likelihood of important changes. At any rate, if the planning commissions during the immediate future enter this field, they run great risk of being discontinued.

In the State of Washington, an important figure in the legislature during recent sessions (and a friend of the planning movement) avows the belief that this field should not be entered by the Washington Planning Council.

It may be well at this point to give a brief history of the legislative attitude toward the creation of planning commissions in the Northwest. This will throw light upon the uncertainty of the planning movement so far as its support by the legislature is concerned. It would indicate also the reasons for certain work which planning groups have vigorously undertaken during the past year and a half.

In Montana, the State chamber of commerce began State planning. When the State-financed planning board took over the planning work, the change was quickly accepted. It is said that popular support has been generous, and that today legislative support is almost unanimous. Time has not permitted the making of an independent check upon the Montana situation.

In Washington, the law creating the State planning council was supported by the conservatives with some progressive assistance. It was vigorously opposed by the left wing groups and they succeeded in trimming the scope of the council's work. This line-up has not held since, as was shown in the 1933 session, when the appropriation for the planning council was under consideration. At that time a conservative farmer led the opposition to the appropriation of funds and was joined by many different groups in the legislature. A part of the appropriation was saved by the personal influence wielded by a former speaker of the house, who made a particular effort to sell the planning idea. The movement has to some extent been tied to a particular party as represented by the Governor and the majority of the legislature. Perpetuation of the plan-

ning movement depends upon the degree to which popular interest can be built up outside the legislature.

In Oregon the recently elected Governor sponsored the State planning movement as a part of his program. When the bill to create a State planning commission was introduced, it was quickly whittled down to a more limited but probably adequate scope. The attitude of the legislature was one of acquiescence but not of understanding or enthusiasm. The man who acted for the governor in revising this bill professes to be a rugged individualist. Perhaps on this account, as well as because the chairmanship of the advisory planning board was held by an outstanding opponent of public ownership of hydroelectric power, the left-wing group in the Oregon Senate showed opposition to the bill. The conservatives were not really interested in the measure but accepted it because it was "the Governor's baby." There was no enthusiasm and little understanding of what might be accomplished by a State planning board. The proposal for creating the county planning commissions was defeated without any resistance.

The Governor of Idaho has recently become more interested in State planning. He had appointed a voluntary council, but neither he nor most of the other State officials gave it active backing. In recent months, however, that attitude has begun to change. The interest of the substate planning areas in water conservation and other crisis needs has modified the gubernatorial attitude and has led to the enactment by the recent legislature of a law which has been discussed above.

A great deal of the activity of the Oregon and Washington boards has been designed to build a popular support for State and county planning so that the attitude of the legislature may become more favorable and more promising for permanent support. There can be little doubt that considerable success has been attained. It is still too doubtful at the present time, however, to warrant the State board in undertaking activity in such a field as that illustrated by the reorganization of State and local administration without the risks that have been stated above. Important as this problem is, it will probably be necessary, for some time to come, to leave this matter to other special or permanent agencies—perhaps as has been done in Oregon, through the selection of a special commission of investigation.

The principal effort to deal with problems of public finance is found in the State of Washington, where exploratory work has been done. As a result there is now under way a project jointly sponsored by the Washington State Tax Commission and the planning council. The entrance of the Washington planners into the field of taxation means an adventure in social planning. The incidence of taxation determines the distribution of wealth and leads to bitter clashes of groups within the State. Controversies over the sales tax, income tax, limitations about the general property tax, illustrate the intensity of feeling that will be aroused if the Washington planners become the proponents of a particular tax policy. Already one of the chief supporters of the planning council in the State legislature has indicated his dislike of this activity. Planners must take sides and either propose or oppose particular taxes and they must pay the penalty whenever their side loses in the political fight for State control. This is very apt to threaten the existence or the effectiveness of the State Planning Council.

What has just been said applies with even greater force to what has been called in the Pacific Northwest "public-welfare" planning. This term appears to embrace the activities needed to remove the conditions of social life which have led to dependency, delinquency, ill-health, economic insecurity, etc. The range of activities implied in the term would correspond (though not precisely) with what is usually understood when the phrase "planned economy" is used. Whether or not "public-welfare" planning might become a process leading to a "planned economy" would depend on the point of view of the planners, public opinion in the States of the region, and national policies. From a discussion of this question with various staff members of the planning commissions, the conclusion seems clear that as yet no one has dared to make a serious and determined entrance into the field of social planning. It is true that the legislative leader, referred to above, who looks askance at planners meddling with taxation, was vigorous in declaring his belief, privately, that the Washington Planning Council will be valuable primarily as it enters the field of social control; but there is in his attitude a fundamental inconsistency, no doubt due to his conviction that the present taxation system in Washington, which he has sponsored, is adequate.

The recrudescence of "rugged individualism" which is already manifested and may be expected to show itself increasingly if prosperity returns for business and professional classes, makes it hazardous in the extreme to embrace in planning such basic questions as wages and profits, social insurance, relation of industrial production in the Northwest to a balanced regional and national economy, and conflicts between various social classes. One widely spread newspaper organization in one of the States is now engaged in planning a united campaign to save the State from regimentation and to preserve freedom of individual behavior on the part of the managers of business and industry. This is symptomatic of the trend which

will doubtless continue unless the economic prospects for these groups turn back in the direction marked by the crisis of April 1933. The best opportunity to have entered the field of social planning, so far as popular support is concerned, came during the past 2 years. But nothing was done or seriously attempted. Such open discussion about it as was indulged in by the planners was framed in general terms. It is true that during the past 2 years a large part of planning effort was consumed in getting organized a planning structure upon which to build. There has been little time to enter in a serious way particular fields embraced under the term "social planning." It seems exceedingly doubtful, however, even if the organization had sprung fully grown from some planner's mind whether much headway could have been made within that field.

This is true first because direction in broad social planning must come from the National Planning Board and its successors, and that direction has not been given. No State or regional area can go very far, even in research, toward the creation of control policies looking towards a balanced economic system, without national backing and guidance. State and regional planning groups could be quite effective in supplementing and working out the detail of such a national program, but for State and regional planning commissions to begin the redirection of an economy which is national and international in scope would be as little likely to succeed as the attempts which have been made to substitute through State action stabilizing controls over industrial wages and hours which were launched under the National Recovery Administration.

The committeemen identified with the subcommittees on Industry and Commerce have not been interested even in open discussion of social controls in those directions. Their basic assumptions are incompatible with social planning. They assume that balance in industry means more manufacturing of products which are now being imported into the region. They are unwilling to make any corresponding diminution in the volume of exports from the region. They are concerned with more population without much regard for the level of living standards that populations have except insofar as immigrants may become public charges. Nor have they indicated much concern with the problems of increasing the living standards of the present inhabitants, save those on relief. They assume the same business methods and devices for industrial management.

This set of attitudes is in definite contrast to those held by the representatives on the planning groups interested in public-welfare planning. The ineffectiveness of the record of the public-welfare groups as indicated earlier in this discussion leads to the suspicion that whether they know it or not they are substituting a great deal of talking for planning.

Our conclusion, therefore, is that public opinion in the Northwest region offers support in varying degrees for permanent planning related to the conservation and development of natural resources, for important physical enterprises such as flood control, irrigation, and probably publicly owned hydroelectric enterprises. It may even permit rather limited effort to deal with some aspects of State and local government administrative reorganization. In time it may support a much better administrative machine for dealing with the unemployed and dependent groups because the volume of unemployment is likely to remain large for some time to come, and the problems of dependency have become exceedingly costly to the public agencies. The need to economize such large sums may impel the public acceptance of alterations in this phase of government organization. Beyond these small areas in the field of social planning, it seems very doubtful if planning in the Northwest can enter without jeopardizing its existence.

To accept these limitations of planning functions may seem a marked anticlimax to much of the planning discussion of the past 5 years. Nevertheless it still leaves a planning field of genuine importance. If the topsoil of our land continues to wash down our rivers at its present rate, creating a barren continent within the next hundred years, as we are told it will, it makes little difference what kind of social scheme we have, for the living standards of our population will be reduced to a tragic level. If the forests are destroyed by the cut-out and get-out methods of timber operation (still almost universal here) it spells catastrophe for our next generation.

It is true, as the National Resources Committee has pointed out, that the economic depression, with its legacy of human ills, was not caused by the waste of natural resources. Adequate social planning might possibly prevent another such experience, but the basis in public opinion does not exist either in the Pacific Northwest or, so far as we may observe, in the Nation as a whole for a frontal attack by Government planning agencies upon the known or putative causes of that great human scourge. In the meantime, if planners are to avoid the Scylla of extinction or the Charybdis of mere day-dreaming, they must restrict their scope to the area within which they may secure results. If this area does not contain "the City of God," it may yet permit the perpetuation of life as we have known it, with perhaps a few added opportunities.

To what has just been said a final optimistic exception may be noted. The Resettlement Administration and the Rural Electrification Administration are na-

tional administrative organs set up to further certain newly adopted phases of social planning. It is possible that the method used for handling the electric energy that wells out the Columbia at Bonneville, Grand Coulee, and the other projected dams may facilitate the attainment in some degree of broad social objectives. They may furnish a new important stimulus to regional thinking, particularly if they "sweeten" the thinking process with widely shared material benefits and demonstrate, by their effective management, the superiority of the cooperative method of solving many of the difficulties as against the wastes and cruelties that the competitive technique so often has produced.

Planning Organization and Structure

Relation of Scope of Planning to Board and Staff Memberships

If planning activities are primarily related to physical-economic questions, there is need to recognize the variations in physical-economic problems to be found in the different subareas within the States and the entire region. In a territory like the Pacific Northwest, there is a wide diversity of land and water situations, in rainfall and climate—all of which have an important bearing on problems of physical-economic planning. The result is that within a State planning board, which is selected without reference to representation of the major subareas within the State, there is likely to be an incomplete grasp of these physical-economic problems by the members whose range of personal experience is largely confined to only a part of the territory. If the membership, on the other hand, is made up, in large part at any rate, of persons who represent the experience of the major subregions within the State, they may be expected to express the needs and the insights gained from intimate knowledge of the section from which they come.

When we turn to county and city planning boards, the cogency of this principle of representation is not so clear because here the area of everyday experience of each member is, by virtue of contemporary methods of locomotion, wider than his particular residence or place of business. Moreover, it is very easy in case of need to examine in detail the problems of every division of the county or city. When we turn to State planning and regional planning, however, the areas of our four western States and the region are so large that similar knowledge is not so readily achieved. Members of State planning boards and the regional planning commission probably cannot know, if they are chosen without reference to the major subdivisions, the situations of these subdivisions with adequate intimacy. This leads to the conclusion that a part of the membership of the State planning commissions ought to be chosen from the major subareas into which the States may be divided. The regional planning commission already gives adequate recognition to this principle. This principle applies particularly to the problems of physical-economic planning.

If the functions of planning in the Northwest are to be expanded into other directions which involve many social controls, then area representation is not quite so important, since social similarities and differences frequently are determined by class and cultural situations in which area differences become less important. From the point of view of a planning structure which is to embrace a number of elements of social planning, therefore, it is desirable to select representation upon a basis that may disregard local areas. Even with regard to physical planning, there will be many problems that transcend local areas. For such functions an "over-all" representation is necessary.

There is another connection between the functions of planning and the structure of planning agencies which should be mentioned at this point. The kind of staff to be furnished a planning commission and the kind of committee structure which it needs to supplement its staff and its own studies should vary with the scope of planning activity. If physical planning is the major objective, then the staff should be selected for its competence in the fields thus covered, in engineering, architecture, economics, and the physical sciences. Similarly, the subcommittees should be confined to those concerned with physical resources, their utilization, and conservation.

If, on the other hand, it is the expectation that the planning agencies will engage in planning for educational development, for the development of a more humane industrial order, the staff and the committees need supplementation by persons whose training comes in different fields than those which the physical planner has experienced. There may also be a different emphasis in the allotment of funds for planning work and for the general direction of planning activities.

In making this antithesis between physical planning and social planning, it is not intended to imply that the two are clearly distinct. Perhaps there has been too much made of the antithesis in the consideration of planning, for obviously all physical planning must be projected for human beings. Development of roads, of rivers, etc., cannot be undertaken unless there is kept in mind the human use to which these physical improvements will be put. It is nevertheless true that the people competent to do the major part of planning research and guidance in these fields of physical planning have normally not been trained to think very broadly of social objectives. Neither in their formal educational training nor in their range of personal

experience is there the opportunity for them to secure the social insights that will be needed if planning is to be expanded from the sphere of things to the sphere of people's needs.

This problem of the scope of planning also has a bearing on the selection of the personnel of the planning commissions. If there is to be an expansion of planning activity into fields not heretofore covered, then the planning board memberships must be enlarged or redesigned to make that planning effective. The size, however, should never increase beyond the point where informal, intimate discussion is hampered.

It must always be remembered that the members of these boards and their chief consultants are sitting in judgment on proposals coming from a diversity of subcommittees of specialists. They must be relating one proposal from one special branch of knowledge and experience with proposals from other fields. Even within the realm of physical planning it is often difficult to make such correlating judgments for it makes a demand for broad technical knowledge and experience. But if the scope of planning is still further widened to take in what has been captioned "Public Welfare"—with its diverse segments in Government organization, public finance, employee-employer relations, industrial development, security, safety, health, etc., there is either an impossible demand for omnicompetence on the part of board members and the head consultants, or else there must be careful planning of representation on the boards and the staff so that these diverse fields of planning interest may be effectively represented in the planning process. Thinking cannot proceed further than insight. Insight is the product of good intelligence fortified by precise information and a sensitivity to all the significant elements of each problem situation. That sensitivity or "feeling" emerges from habitual activity within a particular realm of knowledge and experience.

It is on this account that the personnel of board and staff membership must be carefully related to the range of functions that governmental planning is to embrace.

The difficulties inherent in selecting such a correlating group are increased in the American States by the lack of responsibility of the State administration to the legislature. The separation of powers principle has created a situation in which the State governor will be inclined to regard a planning board as integrally related to his political fortunes. Since governors are always faced with potential conflict with the legislature, to which they are not responsible, they are bound to be very much concerned with the effect of the planning board's behavior on legislative sensibilities. The two-house system increases the delicacy of these political relationships. On account of the importance likely to be attached at any time to "egg treading" qualities, governors will tend in any long period to make selection of many planning-board members whose political adeptness may be superior to their planning insight. This in turn will affect the kind of staff which must direct the basic studies.

Structure of State Planning Boards in the Pacific Northwest

Montana.—The Montana Planning Board is identical with the Water Conservation Board, being composed of the Governor, State engineer, and three citizens appointed by the Governor. The chairman of the planning board is one of these three citizens. The engineer has been the executive officer of the board. As was suggested above, much of the effective work of the planning board in Montana, however, has been delegated to the advisory planning council. The advice and recommendations of the latter group are readily accepted by the planning board. This advisory council is made up of 12 citizens, each representing one of the districts into which the State has been divided for planning purposes. These 12 districts have been so designed as to include the area surrounding each of the 12 principal trading centers in the State.

The advisory council is still further divided for occasional planning purposes into east and west Montana. This was illustrated by the meeting held in Helena in September by the chairman of the regional planning commission and his staff, when the discussion of the kind of planning and operating organization to be proposed for the Pacific Northwest occurred. At that meeting the advisory council members from west Montana were all present, but the eastern part of the State was not so fully represented.

This Federal type of planning structure seemed necessary because of the immense size of the State of Montana and the sparseness of its population. Many inhabited parts of the State (particularly in the west) are divided by vast intervening land areas practically without population. The impression which this structure would give is that Montana has a ward system of representation on its planning board. Nevertheless it is the judgment of the people close to Montana experience that the planning board has not suffered appreciably from the typical difficulties of ward particularism. There is, at present at any rate, no disposition to change this scheme of representation.

Another important fact about Montana planning personnel is the circumstance surrounding the inauguration of planning activities in that State. Planning was the direct outgrowth of the concern felt by the State chamber of commerce, which organized "Mon-

tanans Incorporated", to deal with urgent crisis problems calling for organized community effort. While the planning function of the corporation has been superseded by the board and the advisory council, it is correct to say that practically the same people are in charge of planning today.

Idaho.—Not until the session of 1935 was the Idaho board given legal recognition. However, early in 1934 the governor had appointed a voluntary board made up of one distinguished lay citizen, and a number of State public officials. Despite the active interest of the chairman of this group, the State officials in general did not give close attention to the State-wide planning program. The result was that, while the form of a State planning organization was created, it did not have adequate prestige or support. However, the first board did arouse lay and professional interest in the planning movement, supported legislation to put planning on a proper basis, and supported the preliminary work of local planning organization. It was partly on this account that the chief emphasis found in the work of the Idaho consultant has been in the organization of the county and substate-regional planning groups which we have described above. These substate-regional planning areas would seem to make a logical foundation for territorial representation upon the State Planning Board, should that be desired at some future time.

Idaho shares some of the same difficulties, plus certain added ones, that west Montana has, with regard to concentration of its sparse population in a small number of river or valley basins. It not only has the separation of these population centers by long distances, as in Montana, but it has an especially difficult series of topographic barriers which, because of the north-south axis of the State, have been almost impossible to overcome.

The present Idaho board (officially appointed several months ago) appears to be exceptionally well balanced, not only in a geographic sense, but in its range of competence. One member is chief electrical engineer for a very large mining company and has a background of research and planning in electrical processes; two are merchants with active civic interests and a State-wide reputation for community leadership; one is an authority on reclamation and an owner of various types of farms; the fifth member is an attorney, distinguished not only in his profession, but for his theoretical and practical knowledge of economic and social questions.

Oregon.—The first Oregon board was made up principally of State officials. It had no legislative basis. Partly for that reason, and because of the absence of appropriations which could be spent to cover the expenses incidental to the activities of such a board, these officials decided they could not function as a planning agency. The second board, or council, recognized by the chairman of the regional planning commission, was a volunteer group of planning enthusiasts drawn from Federal offices, university and State colleges, and certain professional and business groups. Its composition was affected by the total absence of funds. The membership of the board paid their own expenses unless they could meet without expense. This group started an important program of research which has been taken over by the present board, created pursuant to legislation adopted January 1935.

There are nine members of the present board, chosen primarily for general interest and competence in planning problems. Additional consideration, in the case of certain members, has been the connection with important groups or interests within the State. For example: One member is a prominent county judge; one was at the head of the League of Oregon Cities; one is the director of the agricultural experiment station. The other members include: The head of the department of sociology of the State University, a prominent architect, the regional United States forester, an influential lawyer and businessman from eastern Oregon, an engineer-orchardist from southern Oregon, and a prominent and active former State senator from a coast county. In the original membership there was no one who directly represented southern Oregon and only one who came from eastern Oregon.

Washington.—It must again be pointed out that this group has its planning tasks limited, by statute, to conservation and development of natural resources. It has no injunction such as was contained in the Oregon act to delve into the ramifications of political organization, public finance, and public welfare. Nevertheless its membership reflects a broader range of interests than its legislative functions might imply. The statute provides for nine members, but the vacancy left by one death has not been filled. Of the eight members: One is a State official, the head of the department of conservation and development; one is a superintendent of schools of an important city; one is a newspaper publisher; one heads several trade journals devoted chiefly to fisheries, canning, and pulp industries; one is a retired school man and farmer; one is a farmer; one is a distinguished Seattle merchant; and the chairman is an attorney with wide knowledge and deep interest in both physical and social planning problems. All of the present members, except the chairman, live in the western half of the State.

Summary of experience of the State planning agencies.—It may fairly be said that the members of the Oregon and Washington Planning Boards who were

not appointed because of local representation demands have been exceedingly sensitive to that fact, and, therefore, are very careful in their efforts to understand and treat fairly the planning problems of all sections of their State. There can be little question so far as will is concerned that both boards are deeply desirous of giving due consideration to every part of the commonwealths which they serve. It must also be recognized that the composition of the technical advisory boards in these States does give recognition to many sub-State areas which the board itself does not avowedly reflect. It is still a little too early to know whether it will be desirable soon to change the composition of the State boards so as to make a certain proportion of the membership take on the character of delegates from the major subregions in the State. It is believed by one of the members of the Oregon Planning Board that the time will arrive, as soon as the subregions have developed their own planning structure and experience and drive, when a part of the State board must be chosen explicitly to reflect these subarea interests. However, until there is such coalescence of counties into sub-State area planning structures in Oregon and Washington, the present "over-all" criterion of selection should, doubtless, be continued.

The second conclusion growing out of the planning experience of these States has to do with the general failure of State officials to become effective in planning work (although there are some conspicuous exceptions). On the whole there has been ample demonstration that State officials have been indifferent and sometimes hostile to State planning. One of the distinguished exceptions is in the case of Montana where the State engineer has been an important driving force with deep and active interests in this field. It is also true that in another State one of the State officers has been a very important force on the board. In that State it is obvious that the chief of a department which is especially concerned with the conservation of certain natural resources and particularly with the function of flood control, could be either an effective aid or hindrance to a State planning board. It is nevertheless true, in any such case that there are certain administrative and political sensitivities that impede, to some extent, planning activities. For example: Occasionally the State board has been embarrassed through the dual source of publicity concerning problems being considered by the board or its committees.

The conclusion of many who have come most closely in contact with State officials on planning questions is that they are inclined to treat planning in the light of its effect upon their administrative or political careers. Thus far most of them have apparently felt that the movement was one which would not advance their interests and so on the whole have been either lukewarm or hostile. For example, in one of the States, the chairman of one of the subcommittees makes the catagorical statement that the State official with whom his committee's work is most closely connected has been actively hostile toward every proposal that it has suggested.

This is in direct contrast to the attitude of officers representing the Federal departments in the States of the Northwest region. Why should this difference be so marked? Why should men in charge of important State functions take this position toward a movement designed to make more effective the work which they are doing? The answer appears to be that a State office is on such an impermanent basis that men regard it as a temporary job or way station on the road to some further political preferment. Until the direction of these important State functions is in charge of trained men who make it their life work, it is unlikely that this attitude will be greatly altered. Men in these positions should have a sense of a continuously developing program, of the need for the long-range point of view, of the need for effective research to make that long-range view fruitful. Planning cannot be secreted within the brief gaps of time left over from routine administration.

Another reason for the apparent difference between State and Federal officials is the existence within a number of Federal agencies of research programs and research staffs. For example: The part played by the experiment station of the forestry organization in the Northwest is very definitely linked with the planning work in land classification and the acute concern with forest management that the State technical advisory subcommittees have so clearly shown.

Since regional planning must be based on State and local planning activities, much of the work of the regional commission should be done through these subordinate groups. It should be a matter of serious concern to the National Resources Committee what the membership of these planning agencies is. It ought to be interested in encouraging the selection of the type of membership suited to the range of planning tasks. This is a problem which calls for continuous observation so that as changes occur either in the scope of planning activities or in the articulateness of sub-State-regional areas, the types of membership of the State boards and their technical advisory bodies should reflect such changes.

The Pacific Northwest Regional Planning Commission

Four of the five members of this board are chairmen of the State planning commissions. Up to the present time they have assumed little responsibility for formulating directions to the regional planning and consulting staff. If, as is proposed later on in the study, that staff should be enlarged and made ready for important research work, there might come a need to make provision for a division of authority as between the State representatives on the regional planning commission and the representatives of the National Resources Committee, in the control of the staff's research activities. If the funds for the regional staff are furnished by the National Government, and if the direction of research undertaken is to reflect the national interest in regional planning problems, some definite agreement indicating the precise authority of each segment of the board may need to be reached.

Already there have been symptoms of possible disagreement on questions of this type. For example, a proposed power market study evoked considerable concern as to the plan to be followed in carrying out the investigation—whether the work would be done in larger part at the commission's headquarters in Portland or decentralized among research workers in various metropolitan and higher-education centers. The problem may have caused particular concern in its consideration because it seemed to touch the competitive interests of different sections in the matters of immediate technical employment and future industrial expansion. However, the solution arrived at involved, logically, both features—centralized control and coordination, and a maximum practicable decentalization of the actual work of research. While it may be true that a subject such as the one cited is more likely to raise issues of particularism in research, it is probable that it would be present in other research problems were the regional staff enlarged to undertake them.

As one reads the minutes of the regional planning commission's meetings, together with the abbreviated notes of discussions, one obtains the impression that on a number of matters the commission tends to think or act upon the basis of State interests, and also, often, upon the basis of Northwest interests, with little emphasis upon the national interest in the Northwest. This can be illustrated by the action taken in the meeting of March 2, 1935, when the commission adopted a blanket endorsement of the program of the Federal Bureau of Reclamation for irrigation in each of the four Pacific Northwest States. The action was taken upon the faith of the commission in the Reclamation Bureau; but without special subcommittee or staff investigation. In justification for this lack of special inquiry there may be cited: The fact that the program was then before the national administration in the work-relief program; and that the chairman and the members of the commission and their consultants were familiar with the reclamation programs as a whole and particularly with respect to their respective States. The chairman has been identified for over 16 years with the reclamation movement in the West. The then chairman of the Oregon State board was, for many years, a special consultant to the Bureau of Reclamation in the designing of important engineering projects. Another member, as an attorney and civic leader, has been in close contact with the Columbia Basin project and other reclamation developments for a number of years. The fifth member, as State engineer and executive officer of the State water conservation board, has been in intimate technical contact with the reclamation needs for his State for a long period. There was no specific consideration of the conclusions which had been arrived at by the National Resources Board's subcommittee on land utilization, the conclusions which the National Resources Board had itself endorsed concerning new reclamation projects. In the opinion of the writer this is a type of case in which the composition of the regional planning commission by virtue of the preponderant representation of State entities was not in a position to take either a balanced regional view of the reclamation problem or one adequately reflecting the national policy within the region.

Other endorsements of projects have been made by the regional planning commission, in regard to long-term navigation developments, that might be mentioned because of the apparent brevity of consideration by the commission and the lack of discussion from the point of view of national planning welfare.

It would seem to the writer, therefore, that the regional planning commission should have a larger part of its membership, without detracting from the present State representation, which would reflect the national planning board point of view within the region. The writer has made suggestions in the section of this report which deals with organization for the operation of public works for the enlargement of the representation of the national planning agency on the regional planning commission to two members.

Another phase of the problem of representation in the regional planning commission's proceedings has to do with the planning interests of the Federal bureaus operating within the region. As the matter now stands there is no regular and formal participation in the discussions by officers of the Forest Service,

the Corps of Engineers, the Reclamation Service, the National Park Service, the Geological Survey, and newer planning and development agencies such as the Resettlement Administration, the Works Progress Administration or Public Works Administration. It is true that at certain meetings some officers from these bureaus have been called in where it was known that they would be of service in illuminating the discussion. Certainly there is need for securing the consideration of the mature judgment of the officers of the major Federal departments whose work is affected by the acts of the regional planning commission, or vice versa.

The chief impediment in the way of representation on the board of these Federal departments is the question of numbers and departmental sensitivity. If, to the present membership, there were added three or four members from the major Federal agencies operating in the region, the question would immediately be presented—which agencies to select and what would be the consequence of leaving out others? One has to recognize that between bureaus and departments there are traditional rivalries and irritations; even between the personnel directing certain offices within a region, there are likely to be personal rivalries. On this account it seems very difficult to propose an explicit enlargement of the regional planning commission which could stop at a reasonable number. To make it a group of more than 10 or 12 would be to destroy its effectiveness as a discussion agency; neither is it desirable to swamp the State representation with a large number of Federal bureau officers.

There seems no way out of this Gordian knot but to cut it. It is possible to satisfy in part this need for Federal bureau representation by careful composition of the regional technical advisory subcommittees. Yet to allow for the fullness of knowledge about the work of the major Federal bureaus that is needed in coordinated planning the regional commission must be continuously and fully conversant with that work. If all questions discussed by the regional commission were routed, prior to their consideration, to technical advisory committees concerned with them and if a written report were sent to the regional commission in each case, the problem would be partly solved. But it is almost impossible to adhere strictly to such a routine practice. Moreover there are many exploratory discussions which a regional commission should constantly carry on, where the exploration may be sterile or aborted unless representatives of such important research and planning bureaus as forestry, reclamation, Army engineers, and resettlement are present.

The status of the Regional Planning Commission among the Federal bureaus operating in the Northwest is still quite indefinite and uncertain. To secure the position among them which is essential if effective planning is to be achieved requires a decided change in administrative practice that will probably not come about unless Federal bureau representation of some kind is secured. The commission needs the right to have bureau developmental projects of broad nature come to it for discussion and advice before they are launched. It should also be desirable, from their own standpoint, for the Federal bureaus to participate in the work of the regional planning commission. It seems to the writer that what is required in order to present an effective case for a better Federal status essential to regional planning is the inclusion of such agencies as the Corps of Engineers, the Forest Service, the Bureau of Reclamation, and the Resettlement Administration. To illustrate the need for this conclusion, concretely, we may call attention to the case of the Corps of Engineers, which has sweeping legal powers to initiate studies dealing with power, navigation, flood control, and irrigation on all the rivers in this region. In the judgment of the writer it is illogical to ask it to send its projects to the regional planning commission, so long as that body does not contain some kind of representation from the Corps of Engineers. It is possible that at the present juncture Federal bureau members of the planning commission should not vote. While that is not a fully logical arrangement, it is suggested for the sake of furthering the regional planning movement and establishment of a more effective mutual status among the Federal planning agencies and the regional planning commission.

The Regional Planning Commission has suggested a way of meeting this problem, which would involve the creation of a Federal coordinating committee. This committee would be composed of the the chairman of the Regional Planning Commission and of a representative from each of the following departments: War Department, Interior Department, and Agriculture Department. The initial membership may be increased by adding representatives from other departments. The purpose of this committee has been indicated "to consider and work out solutions of all problems of coordination in regional development and conservation . . . either upon suggestion of any of its members, or through reference to it by the Pacific Northwest Regional Planning Commission, and whether such problems arise out of relationship between Federal departments or between Federal and State agencies."

This plan is susceptible of development to meet all of the considerations urged in this analysis, provided the coordinating committee is used regularly to meet with the regional commission when that body is in

session. The difficulty presented at this point is the expansion of size envisaged in the proposal. For the purpose of coordinating the activities of Federal and State departments in the region, it is very likely that the committee will need to be enlarged to include as many as 10 or 12 members. For the purpose of regular attendance with the privileges of full and free discussion at the meetings of the regional planning commission, not more than five department representatives should be present. It is, moreover, desirable to have present at the commission's meetings those particular bureaus, as indicated above, whose activity tends continuously to interlock with the Regional Planning Commission's tasks.

It might be a practicable solution of this matter to provide that the original representation from the War Department should be a member of the Corps of Engineers; from the Interior Department, a member of the Bureau of Reclamation; from the Agricultural Department, a member of the Forestry Service; and include an additional representative from the Resettlement Administration. These, and perhaps one other, might become a subcommittee of the coordinating committee possessing the added function of regular attendance at the meetings of the Regional Planning Commission.

If the development of this committee should take the directions just sketched, the proposal of the Regional Planning Commission would meet the suggestions made by the writer for the desired membership of the Regional Planning Commission.

In setting up a proper planning organization for the region, it is essential to take the risks of encountering bureau rivalries and expect that in time these will be moderated as the sense of the value of cooperation in planning gains strength. There is some hope that this may be realized when we note that the bitter jealousies of men brought into State planning activity from the institutions of higher learning are showing signs of distinct moderation.

At the risk of repetition we give the following hypothesis concerning the issue of membership on the regional commission: The composition of a regional planning commission ought to be related to its objectives. The Pacific Northwest Regional Planning Commission drew up for itself a statement of its purposes at its first meeting on January 12, 1934. This reads:

> Objectives shall be:
> 1. Developed economy of the Pacific Northwest integrated with national interests: As immediate relief to unemployed.
> 2. For effective plans toward profitable use of P. W. A. projects.
> 3. To establish long-range social and economic values.
> 4. To bring about widened human opportunities for this and succeeding generations.

This statement needs amplification. It must be remembered that we are dealing with governmental planning, and that the scope of Government functions is still quite limited, leaving a large sphere for individual enterprise. We have tried to suggest at another point the directions in which governmental planning may successfully move. Whatever is finally achieved will be expressed chiefly through the acts of State, local and national legislatures, and administrators. The regional planning organization is partly an expression of the need for a body politic intermediate between the State and the Nation, partly an expression of the inappropriateness of existing State boundaries, partly an outgrowth of the federalizing tendency which requires closer articulation between State and national governmental activity. There is no chance that State boundaries will be changed or that a regional body politic will be created. Therefore these newly felt needs must be realized by (1) uniform or coordinated State action, (2) coordinated Federal activity within the region, and (3) integrated Federal-State action.

If we keep these three modes of realizing planning purposes in mind, it will help us to see how a regional planning commission must carry on its work and whom it needs in its structure to make that possible. Uniform or coordinated State action (and they are not the same) can be attained only through State representation. The State members should be particularly concerned with needed uniformities of State policy relating to the conservation and development of similar natural resources, etc. That is one very important way in which regional integration may be achieved. Where a joint State administrative organ is essential to coordination, that should be of great concern to the State members of a regional commission. Beyond that they are indispensable in suggesting ways in which Federal activity in the region may help or hinder regional integration. They ought to see with special clarity those aspects of regional welfare that require close ties with the Nation.

Actually the largest volume of governmental activity that transcends State lines and that tends to integrate and coordinate regional needs is the work of numerous Federal administrative departments operating within the region. But to do their task well, they too need coordination. That is primarily the task of representatives on the regional commission who can speak for these Federal activities. It is also the special province of the "over-all" Federal interests that should be expressed by representation coming from the national planning board.

But Federal activity in the region must also be coordinated with similar State activity. "Coorder-

ing" should be done by "copartners." If the Federal agencies are not represented on the regional commission in a manner consonant with the discussion above, that cannot take place effectively; only one partner will do the "coordering." The other, feeling that after all as compared with the States it is spending much more money and doing much more work that is regional in character, is likely not only to pay little attention to such "coordering" but will not be continuously anxious to keep the commission advised of its anticipated programs.

For these reasons the regional planning commission requires three types of representation: (1) Representatives from State planning boards, (2) representation from the national planning agency, and (3) representation from the Federal bureaus most actively engaged on work relating to the conservation and development of natural resources.

Technical Advisory Committees—State Boards

Since these committees are the chief instruments for research and the formulation of programs of action for the boards, it is important that they enlist all the available talent professionally fitted for this work that the public agencies can furnish. Remarkable success has been attained in doing this. All of the States report splendid cooperation of the Federal officials and great interest in institutions of higher learning. Probably Washington has made most use of the professional services of technicians at the University and State college. This is due to the research emphasis the Washington council has preferred. In Montana and Idaho the great distances and the lack of adequate travel funds have compelled most of the committee work to be carried on by correspondence. This is not satisfactory.

One of the difficulties in planning research work is the absence of sufficient office staff for the planning board executives or the consultants to build up a complete and current inventory of research work under way at the institutions of higher learning, and in the State and Federal departments. Such a clearing-house function is very important. Its fulfillment requires more funds.

While the pattern of committee structure is similar in all the States and for the regional commission, the subcommittee structure varies and the number of committeemen differs greatly. In a number of cases the committees are very large. The purpose of such lengthy committee lists, as in the case of the Oregon land-use committee, was to create popular support for the work of the committee. This may have been necessary in the early stages of the work, but it is already clear that committee personnel should be shrunk to a membership which will continue active.

In some cases, as in that of the minerals committee of one of the State boards, the work has come to an end, because the main task is one requiring the creation of a State department equipped to make systematic investigations into the mineral deposits of the States. Again the work of the committee on maps is at a standstill for the task such a group was able to perform was limited to a careful review of the status of mapping in the State and the preparation of a program of basic mapping studies. The latter, however, must be carried out primarily by well-financed Federal agencies. The chairman of one advisory subcommittee in the same State feels that not much more can be done by his committee until gateway legislative changes are made, and until more cooperation with State administrative officials can be secured.

In Washington and Montana, where the technical advisers of the minerals committees are heads of mining schools, the work of collecting mineralogical data and experimentation with new metallic substances can doubtless be continued if funds can be found to continue field explorations and to supplement existing laboratory facilities, staff, and supplies.

These examples are used to show that the boards, and particularly their consultants, must be constantly studying their technical committee situations and modifying them as the peculiar circumstances require. Obviously it is demoralizing to retain committees that cannot function, or that find their work balked for want of legislative or administrative changes. They also indicate the importance of using established research agencies, where supplementary grants will produce high returns in the way of basic data. And lastly it indicates the need of sufficient funds to carry on effective research.

It must be realized that there is a limit to voluntary research activities. There has been a large reservoir of such philanthropic effort in the departments of the institutions of higher learning, and among most of the Federal bureaus. But the stream of voluntary effort is bound to grow smaller as time goes on, unless some moneys are used to supplement the institutional budgetary allowances and bureau appropriations. Increasing attention must be given to this fact.

The morale of the technical advisory subcommittees needs to be carefully guarded. It would be difficult enough to ward off the effects of changes of popular sentiment toward planning. It is, therefore, necessary to notice the effect on morale that will inevitably be produced by the feeling that the committees are accomplishing little or by the feeling of futility. Here we come again to the question of how secure plan-

ning boards are with the legislatures, for the results of work of technical subcommittees will normally be expressed in legislative or administrative policies.

It is desirable to get clearly in mind the difference between ordinary research and State planning. State planning does not stop with institutionalized research, but it must go beyond the pursuit of knowledge and pleasure which that activity frequently yields. Research without a tendency toward the creation of social policies which in a democratic State emanate from the legislature and the elective public officers is not planning. Implicit in Government planning are:

(1) Direct action by the Government agencies themselves, or

(2) Regulation of private activity through Government agencies.

The men who serve on the technical advisory committees are enlisted because they are concerned with some phase of State life which requires Government support or control. Even though they be patient and accept the fate of slowness with which changes of policy frequently are made, they are concerned with results. If they find the situation in which they work unlikely to produce these results, in time, it will be almost impossible to keep them actively at work. If the planning board is tied too closely to the Governor, there is great danger that the board will go out of existence when the governorship changes or when the legislature is antagonistic to the Governor. (The Pacific Northwest States have had many examples of conflict between governor and legislature.) Nevertheless the planning board and its committees must work toward modifications of social policy. In this dilemma it may strive to fortify itself by going outside the regular business of planning, as has been done already, to build support for it directly in public confidence throughout the State. Here again it may be caught in another dilemma, for, to secure sustained public confidence, it must be able to produce visible results without legislative and gubernatorial support. If the Federal works programs continue for some time and State and county planning boards are made an integral part of the organization which selects what projects shall be constructed or done, this function may bridge the interval of time which is necessary to obtain widespread popular support of permanent planning agencies for the States and counties.

Technical Advisory Councils—State

The general pattern of planning organization in the States makes provision for what is called technical advisory councils. This is the group composed of the chairmen and technical advisers of the subcommittees. It has been expected that this council would be the chief agency for correlating the special studies under way and for preparing programs of future research for the consideration of the planning board. It might also be used to consider reports from the special subcommittees when those should deal with matters touching a number of fields covered by other subcommittees. The scheme has not functioned uniformly well.

In Washington, after the original meeting when the advisory council was formed, it failed to meet again. The reason for this failure was the rivalry between executives of the university and State college. As this feeling moderates, of which there are indications, it is possible that this council may revive and become an important part of the machinery of planning.

In Oregon, the similar body has met six times. At its most recent meeting, it considered the question of how to keep the county commissions actively at work, discussed the way in which these county bodies might make contribution to the work of the technical advisory committees of the State board. It also listened to a brief report by the chairman of each of the technical subcommittees on the status of the work within these committees and the program for future activity which the chairman had in mind. The idea behind this part of the machinery seems good. But at least the expenses of the members of this group for attending the meetings must be paid if it really is to have a fair chance for operation. The Oregon planning board is now assuming this cost from its budget and so will be able to give this device a thorough trial.

The Staff of the State Boards

In general it may be said that the boards are understaffed for the volume of work which they are supposed to do. Owing to the failure of State Emergency Relief Administration to supply continuous aid, the consultant to the Oregon board has frequently been without adequate assistance. He has been secretary of the board, its executive officer, its promoter of planning activities as well as its consultant and consultant to the technical advisory committees. At the present time he has some increase in temporary engineering assistance. Unless provision is made for a permanently increased staff, the work of this board and the county planning commissions, depending upon the State board, must suffer.

The Washington Planning Council staff has two permanent men (both engineers) plus stenographic assistance. One of them acts as secretary, executive officer, and consultant, while the other has spent a considerable part of his time in research work and in public-relations work, including the formation and stimulation of the county planning commissions. The peculiar emphasis on natural resources, makes the problem of

expansion of staff somewhat different than in the other States, because of the injunction in the law to discover uses for Washington natural resources. The present executive officer feels that new staff will be needed to push this side of the work. The men required would be primarily industrial engineers. At the present time there is a project jointly sponsored by the planning council and State tax commission for investigation into taxation and public finance. To make this project go, the Washington office needs an economist with training in the field indicated.

The situation in Montana, indirectly, has provided more ample staff than in the two States just mentioned. This is true because of the dual character of the Montana board. The executive officer and secretary of the board is also the State engineer. There is in addition to the consultant, an assistant secretary who is likewise trained as an engineer. The Siamese twin relationship between the planning board and water board has promoted a more effective joint use of staff than has been possible in the other States.

In Idaho, the staff situation has been most difficult. For a time (for reasons similar to those in Oregon) the consultant was without stenographic assistance or regular office space. That situation has improved since the recent legislature placed the planning board on a definite statutory basis. There are now two permanent assistants—a research assistant, trained as an engineer, and a planning assistant, trained as a landscape architect.

From the hasty survey which it has been possible to make, our conclusion would be that, if county planning is to go ahead, there must be constant stimulation from the State planning offices. This cannot be done without staff assignment adequate to the task involved. The staff is needed to correlate work of the State technical advisory committees to county activities and to aid the counties in moving toward the objective of permanent, long-time planning. There must also be sufficient staff on the State boards to strengthen the voluntary activities of the subcommittees. What this needs will depend upon the personnel situation to be found among the subcommittees. In some cases the committees need no help, as they will contain members with adequate technical training and sufficient insight and time to accomplish the work assigned to them. In other cases, this is not true. Here supplemental assistance must come from the permanent staff.

One phase of the subcommittee work that has been universal has been the need for knowledge about State and Federal legislation. Nearly every committee report which has been made contains suggestions for changes in the statutes or points out obstacles due to statutory provisions. It may be that in some of the States either a part-time legal consultant should be regularly retained by the planning board or that funds for the purchase of legal advice from a number of lawyers having special fields of competence should be made available. There is a feeling on the part of the members of one of the State boards that the technical men on the advisory committees and the staff need special training in the art of public relations and in civic-mindedness. The complaint is made that men trained in engineering or in the physical sciences do not know how to deal with the public to secure the best results; and the second difficulty alleged is that in most cases these men have what may be called the "private" point of view, which is an impediment in their full success in planning work. Perhaps this complaint may be remedied to some extent, so far as the immediate future is concerned, by the program of in-service training suggested in another section of this report.

Planning Procedures on the State Boards

Early in the history of the State planning boards a struggle occurred to keep the boards from becoming the unconscious victims of "boosters" practices in dealing with the questions that came before them. They were bombarded with requests to endorse, without investigation, this, that, and the other proposal. So far as the Oregon and Washington boards are concerned, they have resisted rather successfully that temptation, for each explicitly adopted a bylaw to the effect that the board will take no action until investigation and report has been made. (A personal examination of the Idaho and Montana experiences has not been possible, but members of the regional planning commission staff who are familiar with their history indicate that it is similar to that of Oregon and Washington.) It is the writer's impression that there has been some failure, as might be expected, in view of the pressure for speedy action, to live up to the principle thus endorsed. At times the boards have referred matters to a subcommittee of their own members which ought to have been sent to a technical advisory committee for more complete study. One reason for this is the grave difficulty of securing quick action by a technical advisory committee which is frequently widely dispersed in its membership.

Another important question of procedure and of policy is the attitude which the planning boards usually take toward the reports made by their technical advisory committees. These reports often come in with recommendations for action by the legislature or Congress. The board is faced with the question whether or not it shall endorse the recommendations. Of course, if the board feels that the work has not

been properly done, it rerefers the matter to the committee; but where the research conducted has been adequate, the board must face the question of its policy toward its committees' recommendations.

In Washington the chairman proposed to his colleagues that the council adopt the practice of not making endorsements. Instead, he suggested that the council send the reports to the governor or legislature with a covering letter indicating the council's conviction that the committee had been properly staffed, and had made a careful study of the subject covered. This principle the Washington council formally accepted. Nevertheless, it has not followed the principle on a number of occasions.

The Oregon Planning Board has taken a different attitude. It has endorsed a number of recommendations proposed by the technical advisory committee reports and has instructed its staff to assist in preparation of bills to modify the statutes indicated. In other words, it has made itself responsible for the policies proposed by the subcommittee reports which it has approved. It may be that the way in which certain reports were made to the Oregon board has had some influence upon their policy in this matter. Among the first reports to be presented to the board were some coming from subcommittees headed by members of the board. Very naturally these members who have been in charge of the study desire to see their work endorsed and have presented the committee's case with cogency and conviction.

This question is a rather fundamental one. In the first place, the subcommittee which finds its work dodged by the planning board is not likely to feel very happy or eager to continue its activity. On the other hand, the board knows that the governor or legislature may be hostile to the recommendations contained. It is caught in the dilemma of our check-and-balance plan of State government. Nevertheless the very nature of governmental planning, as has been said before, requires changes in legislative and administrative policy. If the boards are then to be full-fledged planning agencies, they cannot dodge the responsibility for making recommendations.

Another phase of the structure of State planning boards is the organization of subcommittees of their own members. These are to be distinguished from the technical advisory committees. The Oregon State Board has a number of such subcommittees:

1. The executive committee with three members which acts as a supervising committee over the staff personnel, which approves or disapproves expenditures and which is consulted by the consultant of the board on all routine matters.

2. The planning coordination and development committee. This has two main tasks. One is to coordinate the work of the technical advisory committee with the planning board. It makes the assignments to the advisory committees and it considers the reports of those committees before they are presented to the planning board. Its second function is to act as a promotional agency for county planning. During the past 4 months this function has taken a great deal of time. Because of the interest of the institutions of higher learning in the planning movement, Dr. Philip A. Parsons, member of the State board and a member of the faculty of the University of Oregon, was released from his academic engagements to spend time in the field on this work.

3. A third subcommittee deals with public works. This committee has been exceedingly busy since it has undertaken to review all State-wide projects of the P. W. A. and W. P. A. programs. It has also had charge of the studies connected with the proposed new State capitol building which has been a matter involving a great deal of time.

4. The Government organization and research committee has dealt with the problems presented by the proposed study of State and local administrative reorganization and with the movement to consolidate the adjoining cities of Marshfield and North Bend. It has also been given the special task of reporting upon State prison quarters for first offenders.

5. The Oregon board has also set up a public lands committee which is divided into two major sections—eastern Oregon lands committee and the O. & C. (Oregon and California land grant) land committee. These committees really are dealing with problems concerning large subareas of the State and are discussed in that section of this report relating to regionalism.

In Washington a program and policies committee prepares the agenda for the monthly meetings and makes the appointments to the special technical advisory subcommittees. Its title might imply a steering committee function; but that is not the case.

At the present time there is only one subcommittee of the Idaho Planning Board made up of its own members. That committee consists of one member and the consultant and handles the public-works projects which must receive approval by the State planning board.

The Montana board has no regular subcommittees of its own membership.

Board Meetings

Board meetings of the Planning Council of Washington are held once a month, usually in the capitol, but sometimes in different parts of the State. The itinerant practice was designed in part to secure larger

public interest in the planning work, since the local citizens are invited to attend the meetings. The atmosphere of the Washington council's meetings is somewhat formal. There is a public speaking style of discussion which characterizes the meetings and to some extent impedes the give-and-take that is requisite to the best kind of discussion results. Doubtless this is in part due to the educational objective of the meetings.

As one looks through the agenda for the Washington council meetings, the impression is gained that the subject matter covered at a single meeting includes too many different fields. It would appear that more progress might be made in full understanding on the part of the council and those who hear their discussions, if important subjects were given more ample time for sustained consideration.

The Oregon board also meets once a month. Its meetings are much more informal than those of the Washington council. The agenda seems to be based upon urgent business of which there has been a great deal, especially since the burning of the State capitol.

No opportunity has been afforded your consultant to attend the Montana or Idaho meetings, and, therefore, no analysis of their procedure can be made.

Regional Planning Commission Subcommittees, Staff and Procedure

Technical divisions and their subcommittees.—The charts (on pp. 136 and 138) set forth the plan of subcommittees projected for the Regional Planning Commission. Not all of the committees have been appointed and of those which have been appointed only the water resources committee and the land resources committee may be said to have functioned effectively. In these two cases the chairmen have been men who were identified with Federal regional agencies that were concerned with the field covered by the committee's activity. The subcommittees under the water resources committee have all been active. Here personnel of these committees has been largely made up of men who were serving either the Federal Government, State government, or institutions of higher learning. Travel expense has thus been available for some of these committeemen in connection with their regular professional duties.

Yet, even with the reference to the water resources committee, it cannot be said that its subcommittees have been able to act as units; nor has the committee as an entire group been able to meet with sufficient frequency to secure the best results. The fundamental difficulty here is the absence of funds, which has been pointed out earlier in the study.

It is of vital importance, to the best type of research by the State committees which parallel these regional committees, that the attack upon similar problems should be planned in advance along the lines which will yield the best results for the entire region. This can be illustrated by the technique which was used when the land planning studies were launched with special funds made available by the appointment of the National Resources Board with a land planning committee, under the direction of Dr. L. C. Gray. The State land planning consultants and the regional consultant met before the investigations were launched to work out standard map forms, report forms, and other modes of graphic representation for the data which they were about to collect. This is the kind of approach to a great deal of research in the region that should be regularly used.

Another reason for much closer contact than has been possible between these State technical subcommittees is the opportunity which it affords to avoid the mistakes and profit by the success of each State group. Oftentimes short cuts can be discovered which can be taken by all the States after some State has worked them out. This is illustrated by the work done in Lewis County, Wash., under the auspices of the State planning council, where the school children prepared the present land use inventory. The chairman of the State land use committee looked upon this enterprise as a kind of laboratory test permitting the development of sufficient experience so that when the work was extended to the other counties of the State it might be done with greatest expedition and most effectiveness. During that experience many things were learned not only as to what should be done but what should not be done. This information has never been communicated in any complete or effective fashion to the similar committees of the other States. It is the kind of experience which the regional land use committee should review and pass on to the benefit of all the State groups concerned with this kind of work.

The membership of the regional technical advisory subcommittees is intended to include the chairman of each of the similar State subcommittees. In a good many cases it may be desirable to include also the technical advisers of the State subcommittees making two representatives from each State. It is clear, for example, that in Washington where this double device is used, the men holding these positions should in many cases both be identified with the Regional Planning Commission's subcommittees. It is also clear that on these regional technical subcommittees a systematic representation of the Federal agencies that

are engaged in different types of planning activity should be provided. While some of these agencies are now represented on the State committees, and on certain regional committees, they are not well represented on the latter. A list of Federal agencies operating in the region that ought to find recognition in this subcommittee organization would include:

Department of Agriculture	Resettlement Administration.
	Forest Service.
	Bureau of Public Roads.
	Biological Survey.
	Soil Conservation Service.
Department of the Interior	Bureau of Reclamation.
	General Land Office.
	Grazing Office.
	Bureau of Indian Affairs.
	Geological Survey.
	Bureau of Mines.
	National Park Service.
Department of War	Corps of Engineers.
Department of Commerce	Bureau of Air Commerce.
	Bureau of Fisheries.
	Bureau of Foreign and Domestic Commerce.
	Coast and Geodetic Survey.
Department of Labor	Reemployment Service.
Federal Coordinator of Transportation.	
Public Works Administration.	
Works Progress Administration.	
National Emergency Council.	

A word of warning should be expressed which grows from some experiences with regional subcommittees. Men should not be asked to serve as chairmen who are not actively identified with the State planning work on the similar State subcommittee or with some regional Federal agency whose work relates to the same field. Committees which have had outside chairmen have been uniformly and almost completely inactive. This injunction would also avoid a definite danger of "stuffed shirtism" when people not engaged in planning are selected for chairmanships.

The only special regional subcommittee which has dealt with an area problem covering large sections of two States is the Columbia Gorge committee. Driven by the intelligent and intense interest of its chairman and aided by the allotment of work-relief funds for the technical services required, it has made a very important contribution to one aspect of regional planning in this area. Whether such a subcommittee would logically have been called for had there been an inter-county area planning group on each side of the Columbia River in the Cascade Gorge is not certain; but without such an intercounty and interstate organization, the special regional subcommittee was exceedingly appropriate for the subject matter which it has handled. The difficulties which this last committee experienced in connection with its first chairman's resignation furnish another illustration of the importance of money for effective planning work. In this case the first chairman was willing to give the time but did not feel he should pay his own travel and clerical expense. The second chairman has assumed these financial obligations. Such philanthropic behavior cannot be counted upon in setting up a regional subcommittee system.

It is quite clear that not only must there be provision for paying these necessary travel and clerical expenses but for compensating a good many of the regional subcommittee chairmen on a part-time basis. This is illustrated by a recent letter received from the chairman of the subcommittee on fisheries. This gentleman indicates his intention to resign from that post because he cannot devote the large amount of time necessary to the proper accomplishment of the work involved. He proposes the appointment of a paid chairman. This proposal indicates the need of some kind of financial arrangement that will permit the commission to claim a definite portion of the chairman's time for its committee work. In a good many cases if the chairmen are selected from State, Federal, or university positions this compensation need not be very large. It should be large enough to release these men from their other duties long enough to do an effective piece of work. It should also be sufficient to make these men feel that that work was really for the planning commission rather than a supplemental effort for the bureau or institution to which they were attached. Only in this way can genuine control and direction by the regional commission be obtained. The fisheries chairman's proposal goes further as it suggests a full-time paid chairman. Where full-time services are required to deal with a segment of the planning work, the person so retained should be a regular staff member of the planning commission. This leads to our next subject which is the regional staff.

Regional Staff and Chairman.—It seems patent that, to keep the research functions of the technical advisory subcommittees going properly, there must be additions to the permanent regional planning staff. This would not only take the form of enlargement of secretarial aid available to the advisory committees, but also more ample office staff and more consulting service. The latter is particularly needed to guide and coordinate the many research projects which, under proper reinforcement of the committee system, would be simultaneously under way.

During the past 2 years the chairman's main task has been to enlist public and official support for the planning idea. It has been necessary to overcome not only the inertia of prejudice and ignorance, but to secure active interest and support for regional and State planning. The perfection of the planning structure and the actual attainment of planning objectives have necessarily been delayed until this movement had been built up to a point of general acceptance.

This promotional work and organizational activity has necessarily absorbed a large part of the energy of the chairman of the regional commission. The writer feels that the situation has reached a stage where a shift in emphasis must soon be made. That shift, while not implying that promotion and publicity for planning will ever cease, does require that, relatively, it should decline in importance and time required.

Increasing attention should be given to the general direction of planning. The work of the staff and of the technical advisory subcommittees should become matters of growing attention on the part of the chairman. To give this general direction to planning studies means that the chairman must participate, not as a technician, but as a continuously careful student of planning problems.

The second task, which looms ahead for the chairman, is that of integrating regional planning with national planning. This will require better channels of information flowing both ways between the national planning agency and the region. But in addition to this, it means the chairman must be constantly in touch with the basic studies under way or completed by the national planning agency; that he must be conversant with Congressional and administrative policies of importance to regional planning; and, that he must be conveying to the national planning agency the needs and planning discoveries within the region. All of these interests and activities ought, of course, to be shared with the other members of the regional planning commission; but, as their leader, it is the chairman's peculiar task to carry through this integrating function.

Probably the fullest chance of success to blend regional and national plans requires such change in the structure of the national planning agency, as will include the chairman of each regional commission.

Procedure and meetings of the regional commission.—A decision was made at the meeting of December 22, 1934, that thereafter the commission should meet every 2 months. As a matter of fact, pressure of business since March has caused more frequent meetings. This increased frequency ought to continue if the commission is to properly develop its own esprit de corps and sense of "corporateness." This is a matter of importance for the effective functioning of the commission in regional planning.

We have discussed above the practice which has been adopted to hold a meeting of the State and regional consultants on the day prior to each regional commission meeting. The consultants on these occasions, in addition to other activities, plan proposals to be presented to the commission and discuss matters which are placed upon the agenda of the commission's meeting and prepare themselves to make recommendations. This meeting is a very important tool for aiding the deliberations of the commission and ought certainly to be continued.

A very important decision was taken by the commission at its meeting on March 2, 1935. It arose out of the request emanating from the Portland Chamber of Commerce and presented by one of the commission members, that the regional planning commission endorse a certain proposal calling for the sale, at a very low rate, of Bonneville power to paper mills. The majority of the commission was quick to see the bearing of this request upon its planning function. The commission, therefore, adopted the following resolution:

> *Be it resolved*, That all such projects so submitted shall be referred first to the planning consultant of the commission, and its staff, for investigation and report before the commission takes action.

The ability of the commission to live up consistently to this very excellent rule of policy will depend to some extent upon the amplitude of its staff, the effectiveness of the advisory committee system and the frequency of meetings. If the staff or the committees are not equipped to go much deeper into proposals than the members of the commission themselves, this rule will tend to be disregarded. Also if the meetings of the commission are held only once in 2 months and the number of proposals which come before it increase, the desire to get something done within a reasonable time will also tend to break down the rule. A compromise procedure growing out of this latter situation is illustrated by another action taken at the same meeting at which this rule was adopted. That action was an agreement, in regard to a proposal looking toward the increase of the area coming under the Taylor Grazing Act, that the matter be referred to the land consultants for a report. The latter, when prepared, would be transmitted to each member of the commission, and, if the commission members should then give their approval in writing, that approval would stand as the action of the commission at its March meeting. While there may doubtless be certain urgent matters to justify this kind of procedure, it is a doubtful expedient for deciding important planning policies. This practice omits the benefits which flow from group thinking that is an accompaniment of the discussion when the whole membership meets together. While it may be necessary in certain instances to use this technique for arriving at planning judgments, it should always be recognized that it is a make-shift compromise and not conducive to mature consideration.

The Relation of the Pacific Northwest Regional Planning Commission to a National Planning Agency

Introduction

Regional planning cannot stop with the consideration of regional interests alone. What happens in the Pacific Northwest in the failure of the States which compose it to conserve or to properly develop the resources within the region is a matter of national concern. In a sense the regional population and the political agencies which act for them are custodians of great raw material supplies concerning which the Nation, as well as the regional population, is vitally affected. If they are wasted, irreparable national, as well as regional, damage will have been done. If they are wisely used, benefits will flow out not only into the locality but into the Nation at large. This point of view is well expressed by the report of the water planning committee of the National Resources Board, which described the national concern with conservation of water in the following words:

> In the interests of the national welfare, there must be national control of all the running waters of the United States, from the desert trickle that may make an acre or two productive, to the rushing flood waters of the Mississippi. . . . The task of making and carrying out a national water policy will involve many agencies, some existing, some of which must be created. It will take a long time. It will demand the highest order of statesmanship and patriotism. . . . Here, as in other things that we do and plan, our children's children should have cause to thank us—not reproach us.

Among other reasons for this concern of the entire Nation in the Northwest are such considerations as the following:

First. The investment of large sums of national money in great public works. This region, like other parts of the West, has been a field for large Federal expenditures for irrigation—expenditures which are likely to continue. It has also received millions of dollars for river and harbor developments, in the same manner as other parts of the United States with similar ocean and river facilities. During the past 20 years huge sums have been invested in Federal-aid highways. There is now beginning a large outlay in hydroelectric development which may continue until the water powers of this region are fully harnessed for human use. It may be anticipated that still further funds will be spent for flood control, though with probably certain local contributions required.

Second. There is the Federal concern with its own domain, which, as has been explained, covers enormous districts within the four Northwestern States. The forests in the mountain area, the minerals, and the grazing areas are all affected by the quality of planning effort displayed by the Regional Commission and its State colleagues.

Third. There are the new Federal financial obligations assumed during the past few years for the relief of the unemployed. The expenditures of huge sums both for direct relief and for work relief is a sufficient basis for the right to have some influence in creating the conditions of regional activity which affect employment. Here the National Government has entered the realm of social planning, with its proposals for unemployment insurance, old-age pensions, the retirement of marginal lands, and the resettlement of the population on good lands. How far it may go in this direction is not clear, but if it retains the activities just listed, it has a very important new place in the programs that may be developed by the planning agencies within the region.

It may be interjected at this point that the region in turn needs the guidance of a national planning agency which has a permanent, definite status in the national organization. Such a status involves the recognized function of having other national agencies, with programs affecting the conservation of natural resources or the new social programs recently undertaken, listen to the informed advice of that national planning board. To gain this position, apart from legislative buttresses that may be required, the national board must be given sufficient funds to employ a staff that can carry on the research work required to make its advice to the other national agencies and to the regional planning commissions worth having. It also needs to participate in work of other Federal planning agencies. A regional planning commission, no matter how effective its work within the region may be, frequently requires action by national departments or by Congress to make its work effective. A national planning board with real status and influence is the only satisfactory answer.

This point can be illustrated by the present situation concerning the salmon fisheries in the Pacific Northwest. Here is a case in which the regional subcommittee on fisheries and the Washington State Planning Council's division have made careful investigation into a problem of urgent importance affecting the future of the sockeye-salmon industry. These State and regional subcommittees and boards have given careful attention to the proposed Puget Sound-Fraser River Treaty, designed to do for this branch of the fishing industry in the Northwest what the halibut fisheries agreement has done for halibut. Despite this work and the importance of the subject, the proposals made have apparently been unable to

secure proper hearing at the Nation's Capital. The persons in the Northwest concerned with this important conservation project feel that the National Resources Committee cannot be effective in this matter, since it has no national technical committee on fishery resources to consider and support their plan and since the National Resources Committee, as now organized, cannot give the sustained interest and effort to this one of its many activities. There is cogent reason to believe that the real deciding influences in this crucial regional fishery matter will be two United States Senators and an advisory fishery committee appointed by the Secretary of Commerce. That committee has no connection with the regional or national planning committee structure.

The chairman of the regional subcommittee feels that if these recommendations can be so completely lost sight of, it is futile to continue planning activity in the region.

Staff Relationships

The National Resources Board is represented by one member only on the Regional Planning Commission, the chairman. In the selection of consulting staff for the regional commission and the four States, the process has been for the National Board to act as an approving agency upon the recommendations of the regional chairman. In the selection of State consultants, the regional chairman has made his nominations after discussion with the State planning boards.

Returning to the matter of backgrounds, the profession of two members of the consulting staff of the regional-planning commission and of three of the four State consultants is engineering. One State consultant has been identified with agricultural work for one of the western railroads. So far as can be judged at the present time these men have been as well equipped for their duties as could be expected for a new and untried field into which they have been inducted. It is quite possible that after certain crisis phases of planning activity in some of the States have been met, there may be a shift in the planning functions requiring somewhat different talent. In this case, it may be desirable to supplement the present staff with sufficient consulting service to care for the new functions.

In any event, the men now holding these positions for the regional and State planning boards are mariners on an uncharted sea. They must find their way from point to point as they go, hoping to see far enough ahead to have at least a sense of the probable direction their work should take. It seems peculiarly appropriate, therefore, that the National Resources Committee give consideration to the creation of some form of in-service training to these State and regional consultants. This may not require formal instructional facilities, but it does need a systematic collection of the best experience that can be extracted from the work of the other State and regional-planning commissions and the transmission of that experience in the most effective way to all of the men in charge of the staff work for the State and regional commission in the Northwest. It may involve the provisions of funds with which to bring to the Northwest men who are doing a particularly worthwhile piece of work in other States or regions. It may require the periodic assembly of the consultants at the Nation's Capital for the purposes of mutual information, stimulation, and guidance. Whatever the form taken, it is clear that there is urgent need to make quickly and continuously available the best in planning insights that can be discovered.

It seems necessary to comment here upon the financial relationship now existing between the National Resources Committee and the State consultants. At the present time they are employed upon a 20-day basis by the national committee. In Oregon the additional period of each month is paid for by the Oregon planning board. In Montana, it is met by the Montana Chamber of Commerce. In Idaho the consultant goes without additional pay. Presumably the Washington council will meet the extra costs now that it is given similar consulting service. It must be conceded that the Idaho situation is undesirable and the Montana situation may be characterized as unhealthy. It ought not to be possible for a private agency, representing a particular economic group which frequently comes in conflict with other groups within the State electorate, to assume this kind of financial obligation. It is clear that whatever basis of sharing costs between the National Resources Committee and the States which may be agreed upon, the position should be on a monthly basis. However different the situation elsewhere may be, it is wise to subsidize these States in this way in order to get planning started. It is also clear that it will be wise to continue it both because the State planning function is still insecure and because it furnishes an indispensable connection with the regional planning commission. This arrangement makes coordination between the regional and State offices effective, so far as a single position can accomplish that. It will probably be desirable at certain times for the National Resources Committee or the national planning agency to furnish additional funds for consulting service, whenever special objectives of particular importance require it. There is also a need to place the selection of these men upon a permanent

basis, ending the system of semiyearly appointments for State consultants.

The Routing of Instructions

In routing of information or instructions to the State planning consultants, it is desirable to pour these through the regional commission offices. The practice has departed from this principle probably because of the absence of regional-planning commissions in other parts of the Nation. Instructions given directly to the State consultants tend to produce two difficulties. First, it is made almost impossible to produce the proper refinements and adaptations frequently needed to get best results. Such refinements, the regional office will frequently be in a position to make. It is rather intimately in contact with the work going on and can get much better returns for the National Board in most instances than the board can get for itself. The second difficulty produced by the practice indicated is that it makes for irritation. This is inevitable because the regional staff finds itself frequently ignorant of what is going on until after the event has transpired, and it is unable to make the contribution which its experience and connection with the details of the area make possible. On the part of the State staff the irritation arises since the requests for special activity have frequently fallen at times when the burden of other work was absorbing all the energy possible to give. A more systematic recognition of the functions which the regional office may perform in the routing of requests and instructions will produce better results.

Relations of Regional and National Technical Committees

Perhaps one of the major drawbacks in the practice affecting the work in the Northwest is the lack of articulation between the technical advisory committees appointed by the National Resources Committee and the similar technical committees operating for the State and regional planning groups.

There have been distinguished illustrations of excellent coordination between these research activities carried on simultaneously on the national, regional, and State levels. The best example is that of the land-planning section of the National Resources Board and the land-policies section of the A. A. A. In that case a special staff was appointed for the Pacific Northwest region with a land-planning consultant for each State and for the region as a whole. Here the work was developed in cooperation with the regional and State committees and staff, with beneficial results, certainly for the regional and State committees. It must have been of importance in helping the national committee fill out its national picture of land information.

When the water planning committee was created to carry on a Nation-wide study, a regional consultant was appointed by the National Resources Committee, though without the advance advice of the Regional Planning Commission. After his appointment the regional staff arranged for contact between that consultant and the committee chairmen within the region. There was, however, no direct committee participation and sharing in the research activity. This failure to make as complete use as might have been possible of the regional and State groups set up for research purposes in the same field is particularly important in view of the recommendations made by that committee which expressed the great need for cooperation of State, local, regional, and national agencies if the effective use and conservation of water resources are to be secured.

The mineral policies committee appointed by the National Resources Board, which reported last January, carried on its work quite independently of regional and State technical subcommittees. It also stressed in its conclusions the importance of State action, particularly involving modifications of the tax laws, as a means of conserving mineral resources. It urged the development of interstate compacts as another method of attaining the objectives sought. It seems unfortunate, therefore, that any chance to educate State and regional planning groups through the process of sharing in the research activity, or at least sharing in the knowledge while the activity was going on, should be overlooked.

On January 9, 1935, announcement was made in a release by the National Resources Board of the creation of a technical advisory committee on stream and water pollution. Not until the release of September 30, which arrived at the regional office October 2, and which announced the findings of this committee, did the regional commission know of its work. In this case it may be said that the subcommittees to whom this type of problem has been assigned in the Northwest region and States have not been very active. It would have been a splendid chance had they been brought into the research enterprise to energize them and to develop interest on the part of the State planning boards which might facilitate the adoption of State and local policies which will be necessary to achieve the objectives of the committee. These were stated by the National Resources Board to be:

> A crystallization of possible relationships between Federal and State agencies will be undertaken and

suggestions for joint participation in abatement of stream pollution will be made a part of the findings of the committee.

The recommendations just announced call for a six-point program in which State and regional action will play a key part.

While the regional and the State boards have been quite free in recommending lines of policy to the National Resources Board, dealing with urgent planning problems, there has not been a corresponding use by the National Resources Board of the regional and State commissions. The special reports made by the committees, to which reference has just been made, have in every case contained important recommendations of policy which would require for their fulfillment State and local action. We have already indicated what some of these proposals were, but many other recommendations of the same sort have been imbedded in these reports. If the work of the National Committees is to bear fruit, it seems necessary that a systematic and continuous effort be made to solicit the careful consideration by the regional and State planning commissions of their proposals. It is doubtful if the members of the State planning boards have read these committee reports. Surely the best way to acquaint them with the research bearing upon their own tasks is to insist that they give the recommendations consideration and report their reactions back to the National Resources Committee. In this way the process of educating the State and regional commissions in the national implications of their work and in pushing the reports toward the stage of fulfillment can be greatly facilitated.

Conclusion

In conclusion we may summarize briefly four major suggestions:

First. Lines of administrative control and the routing of business between the National Resources Committee and the States should pass through the regional office in both directions.

Second. Lines of research activity shall connect the national, regional, and State technical advisory committees and consultants, when they are engaged in the same kind of research.

Third. The movement of recommendations and proposals from the State and regional commissions to the National Resources Committee shall have a return journey. Streams of policy proposals resulting from the research of technical advisory committees should pour in each direction systematically to the appropriate boards.

Fourth. There is need for a permanent national planning board with definite status and recognized advisory relationships to all the national departments participating in activities requiring systematic planning.

STAFF REPORT—SECTION IV
2. ORGANIZATION FOR THE CONSTRUCTION OF PUBLIC WORKS[1]

Introduction

The task of analyzing the administrative machinery now used for building public works and suggesting changes for improvement is difficult to do in so brief a period of time as has been given for this study. Were an attack upon the problem to start from proposals looking toward the establishment of a public works department in the President's Cabinet, as has been proposed at intervals during the past 30 years, suggestions for organization for building public works in the Pacific Northwest would necessarily have to be molded into the pattern of such a major change.

It is a fact that those in the region who have come in contact with the public works activity of different Federal departments have a high regard for the efficiency with which these are prosecuted. The hearings held by the regional commission elicited the opinion, which was unanimous, that the construction of irrigation, navigation, flood control, river and harbor work is in good hands. There was no discussion of the works activity of the Forest Service, Park Service, or Bureau of Public Roads; yet, so far as we are aware, all these agencies enjoy a high rating for capacity and intelligence in their construction activity.

The Federal agencies now concerned with public work construction in the Pacific Northwest region are indicated in the following list:

PRINCIPAL PERMANENT FEDERAL DEPARTMENTS AND AGENCIES HAVING TO DO WITH CONSTRUCTING PUBLIC WORKS IN PACIFIC NORTHWEST REGION

War Department:
- Corps of Engineers.
- Quartermaster Department.

Department of Interior:
- Bureau of Reclamation.
- Bureau of Indian Affairs.
- National Park Service.

Department of Agriculture:
- Bureau of Public Roads.
- Forest Service.
- Soil Conservation Service.

Navy Department:
- Bureau of Yards and Docks.
- Bureau of Construction and Repair.

Treasury Department:
- Procurement Branch.

Independent Offices:
- Veterans' Administration.

EMERGENCY CONSTRUCTION AGENCIES

- Federal Emergency Administration of Public Works.
- Works Progress Administration.
- Federal Emergency Relief Administration.
- Emergency Conservation Work.
- Resettlement Administration.

The kinds of public works for which Federal funds are being spent includes the following:

- Rivers and harbors, and flood-control works.
- Hydroelectric power plants.
- Reclamation: Irrigation and drainage works.
- Highways, Federal, State, forest and park.
- Park improvements.
- Navy yards, docks, and other public works.
- Naval vessels.
- Post offices and office buildings.
- Hospitals.
- Army posts, camps, and cemeteries.
- Fisheries.
- Airways.

We have been unable to make any analysis of the work of the existing construction agencies and activities looking toward proposals for modifying the existing pattern. That is a task which calls for a well financed and lengthy examination to be undertaken on a Nation-wide basis.

We do feel, however, that it would be desirable to coordinate more carefully the design of multiple-purpose works, particularly since there is large prospect that these types of activity will be very important in the future development of the Columbia and its tributaries. The purposes of power, irrigation, navigation, flood control, and fish conservation will be present in greater or less degree in practically all of the proposed development projects that have been sketched out for the future of this great river system. It should not be a difficult matter to provide, as we suggest later in this discussion, for a coordinating board or boards to be created which would have the joint control over major design aspects of such structures.

Public Works Planning

The intimate relation of the planning movement to public works is indicated in the genesis of State and regional planning. In a sense it is a direct outgrowth of the first public works program, for it was the regional adviser of that program who, with the encouragement of the National Resources Board (then Na-

[1] By Charles McKinley, consultant, professor of political science, Reed College, Portland, Oreg.

tional Planning Board) took the initiative in organizing a regional planning commission and in stimulating the States to organize planning boards. Such a genesis seems completely logical since the social value of the money being ponred into construction projects could scarcely be made certain without a background of planning analysis concerned with much more than the engineering soundness of projects or their merely obvious desirability. While the immediate crisis has justified the approval of projects presented outside of any context of local, State or regional planning; such a makeshift policy should not be permitted longer than the period essential to the creation of basic planning programs.

It is now nearly 2 years since attention to these fundamentals began in the Pacific Northwest. As we have tried to show in the preceding section those months have largely been occupied in building the planning structure and in creating popular understanding and support for it. However, by December 1934, the members of the regional planning commission felt that the organization was sufficiently well developed to begin to function for public-works purposes. It therefore adopted a motion at its meeting on that date which reads as follows:

> The commission authorized the chairman to recommend to the National Resources Board on behalf of the commission that it is not only desirable, but essential, that State planning boards in each of the four States act as State advisory boards in connection with P. W. A. projects within the respective States, and that the regional planning commission act as an advisory body in connection with P. W. A. projects of regional scope.

Although one member of the commission expressed a fear that if State planning boards undertook this function it would cause them embarrassment and might harm the planning movement, the motion was unanimously adopted.

Prior to that time (on Dec. 1, 1934) the Washington State Planning Council had set up a committee on advance planning of public works which sent a report, after approval by the council, to the National Resources Board. The State P. W. A. administrator was technical adviser to that committee. In that report it recommended a group of Federal, State, and municipal projects running into hundreds of millions of dollars. The projects included consisted of highways, hospitals, irrigation, Grand Coulee high dam, all kinds of public buildings, flood control, military and naval plant, recreational developments, etc. The manner in which the committee undertook its task is told on page 75 of the first biennial report of the Washington State Planning Council:

> Each member of the committee agreed to undertake a survey in his particular field of the amount of construction during the next 10 years and the probable or desirable construction for the next 10 years. The information was to be segregated into private and public projects. The purpose of obtaining the first information was to determine the relative importance of construction work in the general economy of the State; and the ratio of public construction to private construction, and from this, measure their relative importance. Through a subcommittee consisting of Mayors Charles F. Smith of Seattle and George A. Smitley of Tacoma, questionnaires were sent to all towns and cities, asking each one to tabulate future necessary construction. It was pointed out that all this information was essential in order that a coordinated program might be built up not only for the State but for the region and the United States.

This was a fine initial effort to take an integrated view of public works needs, but can hardly be taken as a model of what is desirable as a permanent arrangement for public works planning. Because of the almost complete absence of the basic data concerning land use, population trends, and the multitude of other significant facts which effective planning requires and which can be obtained only after planning has been well developed it was impossible to take a fully balanced and adequately discriminating view of the many proposals that were poured into the lap of the committee by the Federal, State, and local officials.

Early in the present year Administrator Ickes asked each of the State planning boards to cooperate with P. W. A. in making an inventory of useful public works. The effort to do this involved the holding of meetings in many parts of the State which were attended by local officials and interested citizens. It doubtless created a wide popular interest in the work of the State planning boards, and began the process of serious thinking about local and State planning needs. (The feeling exists that the inventory which was compiled had little influence in determining the decisions of P. W. A. officers.)

The Oregon board has done a very large amount and a high quality of work in the public works planning field. Two months prior to Mr. Ickes' request for a public-works inventory it had compiled, on the basis of questionnaires to nearly 500 public officials, a rather full analysis of the needs of local government bodies in each county for future public works. When its report was completed it included data prepared with the help of school superintendents throughout the State setting forth a program of school building needs. It also contained a library building program prepared with the aid of the State librarian. Moreover, it contained a fairly exhaustive study of past construction in the State, both public and private, from 1920 to

1934, together with analysis of wage rates, seasonal employment trends, etc., of workers engaged in the construction industry and estimates of needed volume of public and private construction to give a reasonable degree of employment. The planning approach to this problem was further fortified by data for each county showing the wealth, debt, population, unemployment, and relief conditions, and the P. W. A. allotments each had received.

The Oregon board has also plunged into the public building problem for the State by making a report on the building needs of four State institutions, and, as is indicated elsewhere, for a new State capitol.

While it did not endorse in its inventory a large list of projects, it did select a special "list recommended as being worthy of special consideration for the purpose of employment and developing natural resources."

All of the State planning boards have, under national direction, assumed an advisory function to the P. W. A. and W. P. A. Administrators. The effect of this advisory activity and the amount of effort used in preparing information useful for this purpose has varied with the welcome shown by the administrators of these Federal agencies toward aid of the planning boards. In most cases that interest has been genuine, while in certain others the administrator has not wanted advice. These are largely matters of personality. It is possible that procedural changes might improve the relationship that is needed, but we are not yet in a position to suggest them. This is a situation which resembles that found in the highway organization. There a planning section is required under the Federal rules for grants in aid. It is also desirable for the highway officers to secure the data and advice of the State planning boards. Some of them desire and use this advice, others do not.

The practices which have grown up in the handling of this advisory task by the State boards is worthy of note. No two boards use the same machinery for examining projects. In Oregon it is done by a subcommittee of the board itself; in Idaho the consultant and one member of the board are assigned to the task; in Washington the work is done by the staff executive officer. The actual process used by the Idaho board is described in the following statement of the consultant, which is quoted because it indicates an interpretation of the "advisory" function which is probably typical:

> . . . under date of October 25, the Idaho State Planning Board appointed Will Simons, chairman, and J. D. Wood, consultant, as a committee of the board to review, comment and pass upon all public works project applications . . . submitted to the board for action by the P. W. A. and W. P. A.
>
> Of necessity the actual carrying out of this procedure has been left to the consultant, who adopted the policy of, first, obtaining from the local county planning commissions by questionnaire and letter their comments and recommendations relative to the project applications submitted; then . . . submitting this to P. W. A. or W. P. A., as the case may be, with a general analysis of the facts and information obtained in regard to the project and its relation to a local and/or State planning program.
>
> Specific projects are not endorsed or rejected, but every effort is made to show to what extent the application has been submitted to planning consideration, and the facts and information used in considering these projects.

This policy of seeking information, analyzing the facts of the situation, and passing them on to the P. W. A. or W. P. A. is not a full advisory function. Yet it is the policy which has been rather generally followed. It is probably a necessary curtailment of the function which ultimately should be fully assumed if the planning of public works is to be best done. The State boards have rightly felt their insecurity as a new planet in the constellation of established agencies. Were they actually to approve or disapprove projects they would at once arouse the hostility of those State departments or private groups which are well established and fully implemented in the State legal and political situation. Moreover, the accumulation of information needed to pass definitively upon many projects has not yet occurred. Advice is no better than the information upon which it is based; and the planning movement in the Pacific Northwest is too young to make possible the rendering of final judgment about many proposals that have been presented. A sense of modesty has therefore mingled, very properly, with the sense of direction.

The local planning boards have been used for giving advice about local projects to the city and county governing boards. We have pointed out in the preceding section that up to the present the chief interest of the county boards has been that of securing Federal funds for their locality—although there are signs of a growing appreciation of basic county planning. The members of these local planning boards will generally require a longer period of education into the purpose and nature of governmental planning than is true of the State boards. It may be wise, therefore, if their advisory functions are temporarily restricted to gathering information and making comments upon proposed projects relating to public works, rather than approving or rejecting. In this way their minds may be turned toward a research interest which must be generated if local planning is to be worth while, and

the customary impulse to act under the influence of the "booster" spirit be subordinated to its proper place.

It would be a great stimulus and challenge to the planning groups, on all levels, if the Federal administrators in charge of the release of funds for P. W. A. and W. P. A. would demand from the sponsoring body a full explanation whenever its recommendations run contrary to the advice or comment of the planning boards. Unless something of this sort is done there is danger that the sponsoring bodies may take the instructions relating to the securing of planning board advice in a purely perfunctory spirit.

The acts creating the Washington and Oregon State planning agencies explicitly require them to prepare a program for public improvements. The Montana act commands the board to "make and adopt a comprehensive plan for the physical development of the State." The Idaho legislation is not so explicit in its terms about public works but its language is so broad as to certainly include that phase of planning. In every case the work of the board is placed upon an advisory basis. This position is sound, but it could be made more potent were the following provisions of the Washington statute ultimately copied by the other States:

> The council shall prepare and perfect from time to time a State master plan for flood control, State public reservations . . . sites for State public buildings. . . . Such master plan shall be a guide to the council in making recommendations to the officers, boards, commissions, and departments of the State. Whenever an improvement is proposed to be established by the State, the State agency having charge of the establishment thereof shall request of the council a report thereon, and such report shall be furnished within a reasonable time after such request. In case such an improvement is not established in conformity with the report so furnished, the State agency having charge of the establishment thereof shall file in its office and with the State planning council a statement setting forth its reasons for rejecting or varying from such report and such statements shall be open to public inspection. The council shall, so far as possible, secure the cooperation of adjacent States and of counties and municipalities within the State in the coordination of their proposed improvements with such master plan.[2]

When the State planning boards have reached the point in their study of the State's resources and needs that they are ready to prepare comprehensive public works plans, they should assume the full stature of an advisory agency which is envisaged in the Washington planning act.

The regional planning board has had no recognized advisory relationship to P. W. A., W. P. A., or the Federal construction agencies operating within the region. The first agency is set up on a State basis, the second, while possessed of a regional officer, operates on State lines. The Federal construction agencies are under no obligation to seek advice of the regional commission, and while some advice has been voluntarily proffered it is not likely to have much force until the change of status and organization which we have sketched in the preceding section has taken place.

As a result of conferences with W. P. A. officials in Washington and in the region, arrangements have been made for the appointment by the W. P. A. of a man in each State to coordinate research and planning projects coming under the sponsorship of the State and regional planning boards.

Since there is ample evidence to indicate the continuance of a large volume of unemployment for some years to come, the need for public works planning cannot be expected to disappear quickly. On the contrary its use as a means of creating employment and "priming the pump" of business seems destined to continue for some years. With recurrent business disturbances in the future will come the need to have ready well-laid programs of construction, prepared when the volume of public building is slight and private building is large. To meet these situations requires much more than public building planning. That is just one segment of comprehensive Government planning and must have for its setting, if it is to be properly done, the planning information and programs relating to population, land use, water and other resources that are the elements of general planning activities. All along the line, therefore, must come improvement in the general planning processes.

Conclusion

We close this section with the suggestion that a conclusion as to the best organization for the construction of public works cannot be wisely reached without at least two Nation-wide studies: (1) The construction organization and experience of existing Federal departments, and (2) the lessons revealed by the history of P. W. A. and W. P. A.

[2] Sec. 3, Ch. 54, Session Laws of the State of Washington, extraordinary session, 1933.

STAFF REPORT—SECTION IV
ORGANIZATION FOR THE OPERATION OF PUBLIC WORKS[3]

Introduction

While the Federal Government has been building or lending money for a great many public projects in the northwestern region, our special consideration is directed toward the large irrigation, navigation, and hydroelectric enterprises. Up to the present, most of the flood-control works, when completed, have been administered by local agencies. If large-scale diking systems are undertaken, or if large reservoirs for flood control are constructed in the future, this policy may be changed. We know, however, that there must be Federal operation of the great projects now taking shape at Bonneville and at Grand Coulee on the Columbia; and of the anticipated structures to be thrown across the Columbia, the Clarks Fork, the Snake, and the Willamette, when the programs envisioned by the planning agencies ultimately find embodiment in physical structures.

The two outstanding questions, so far as we can now see the problem of operating these enterprises, are: (1) The proper organization to administer the generation and transmission of electric power, and (2) the coordination of the operating agencies handling the other functions when these impinge upon one another. Coordination can in part be realized through the habits of working together that should become a constant byproduct of the association which the various Federal bureaus will establish through proposed joint membership on the regional planning commission. Where there is additional need for more intensive coordination, special temporary coordinating committees should be set up by or through the regional planning commission to deal with the specific problems. There will be need of a permanent coordinating committee to regulate the release of waters. This is discussed below. Other mechanisms should be devised by the Federal agencies represented on the regional planning commission which may need to call on the department heads at Washington to make such devices function.

Alternatives

We center our attention in the following discussion on the first question suggested above: What is the best form of organization for administering generation and transmission of the electric energy to be released by the new Federal works? In thinking of this, there are five major alternatives which have seemed worthy of careful analysis. These are the following:

1. To entrust to the agencies that construct the task of operation when construction is completed.
2. To give to one of the existing agencies the function of operating all of these works (generation and transmission) or at least all of the more important power functions.
3. To create a new Federal bureau or commission to take on the operation of these works or at least the newest function in the Northwest region—the generation and transmission of electric energy.
4. To create a Columbia Valley authority, resembling in its functions the Tennessee Valley Authority.
5. To establish a new Government-owned corporation endowed with but a single function—the operation of the hydroelectric generating plants and the transmission of that energy to the distribution centers.

These are the most important variant possibilities that seem worthy of review, and which we shall briefly discuss in the sections that follow. When the discussion assumes the creation of a new operating agency, we consider, incidentally, the relation of this agency to construction.

General Tests for a Desirable Operating Agency

In the consideration of operating agencies, it is desirable to keep certain general tests before us. The best operating structure must make provision for these basic conditions.

1. Unified management of the primary function and of other functions so closely related as to be indispensable to it.
2. The attainment of a driving power and administrative talent adequate to secure the maximum social advantage of the new and projected public works. This is particularly important for the newest Federal function being provided by those works, namely, the generation of hydroelectric energy. What kind of organization will offer best promise of seeing and grasping the opportunities for the fullest social usage of this great resource released for our benefit by the Federal Government?
3. Responsiveness to regional sentiment and desires. How can the operating agency be made responsive to the desires and interests of the people of the Pacific Northwest, while still remaining responsible to the National Government, to which it must ultimately be accountable?
4. The maximum protection of the national interest in operation through proper attention to the

[3] By Charles McKinley, consultant (professor of political science, Reed College, Portland, Oreg.), with the assistance of J. C. Rettie, economist.

business requirements of the enterprise. How can the varying problems of what is in effect a great business be most readily and effectively met? How can the management of such enterprises be constantly challenged to make them rest upon their own economic foundations?

5. Articulation with regional planning. The operation of such vital functions cannot be divorced from regional planning activity. What is the nature of the relations that should be provided for, and what the mechanisms for handling these joint interests? How will one type of agency facilitate or hamper the establishment of close connections between planning and operation?

Construction Agency to Operate after Completion

Experience of Existing Agencies

There are really only two construction agencies in the Northwest to be seriously considered as possible power-operating units. These are the Bureau of Reclamation and the Corps of Engineers of the United States Army. They are the two Federal services which have behind them experience in the construction of great public works and which are sufficiently staffed to assume a new function related in certain respects to the function of construction.

At the present time the Bonneville Dam, designed for navigation and hydroelectric generation, is in the control of the Corps of Engineers. The Grand Coulee enterprise, which is primarily for reclamation but also linked with the generation of a huge volume of hydroelectric energy, is in the control of the Bureau of Reclamation. The latter agency has large experience behind it in the construction of this type of public work. It has built great dams throughout the West for irrigation and for joint purposes of irrigation and power development. It has a highly organized technical staff, centering in Denver, for the planning and execution of this kind of activity. It was to the Bureau of Reclamation that the Tennessee Valley Authority turned for aid in designing the dams it is now building. The Bureau of Reclamation has had considerable experience in operating a number of smaller plants, but it has not had any particular experience in the operation of large hydroelectric plants nor in the large-scale transmission of electric energy.

The Corps of Engineers has a construction sphere somewhat different. Its forces have been engaged in river and harbor improvements of various kinds, in the construction of flood-control levees, and in the building of low dams and locks. Obviously, it has not had as much opportunity to operate hydroelectric enterprises as has the Bureau of Reclamation. For a period it operated the great Muscle Shoals plant on the Tennessee River, insofar as that was used. The Corps of Engineers has behind it also the experience in the Panama Canal. But, when all is said for this experience, it should be recognized that the Corps of Engineers have never before undertaken to operate great generating plants or build and operate large transmission systems.

Effects of Future Construction Upon Dual Operation

We should keep in mind at this point what the future possibilities are for the creation of additional enterprises of similar character in the Pacific northwest region. Plans, prepared by the Corps of Engineers, call for the ultimate construction of navigation-hydroelectric dams at The Dalles, at Umatilla Rapids, and at other points upon the Columbia and Snake. Each of these will require an operating staff and transmission lines in order to market the energy generated. The proposed dam at Umatilla would also be an important unit in the reclamation of a large tract of fertile arid land.

On the Willamette River another series of dams and reservoirs is projected, to aid the more intensive development of that very important agricultural area. The purposes of the Willamette River project works are also multiple—including navigation, flood control, drainage, irrigation, and the generation of electric energy. No one knows at the present time who will build all of these future projects when they are undertaken.

If the policy is followed of leaving to the construction agency the operating task, then the Northwest may see a distribution of authority between these two Federal bureaus, and perhaps others, that will have very little relation to a logical organization plan for efficient operation, particularly for the electric power developed by these public works.

Once the full picture of future construction (already proposed) is unrolled it becomes quite evident that some degree of unification will be essential, unless we wish deliberately to hamper operation by a complicated, disintegrated structure. There might be competition and duplication in the building of transmission facilities, and almost certainly the danger of frustrating the creation of a superpower system which must be conceived and developed as a unity. Wage, personnel, and other administrative policies are likely to differ between the two agencies.

It must also be evident that it is essential to secure some degree of unity in the management of the water to be used for these multiple and at times conflicting purposes. It is true that the Columbia River has so ample a supply of water that the competition between the needs of hydroelectric energy and irrigation and

navigation may be postponed indefinitely, but, when the Willamette is taken into account, it becomes very clear that no such favorable setting for administrative particularism exists. There the water must be carefully husbanded to secure the maximum return for navigation, irrigation, and hydroelectric purposes, and these functions must be harmonized with the requirements of flood control. Unity of operation in that tributary of the Columbia will be indispensable from the start. The situation as to the Snake is rather similar.

In any long-range development of the Columbia and its upper tributaries, proper control of the water supply will require both adoption of interstate and international compacts to define the relative water rights of the States and Canada. Some measure of unified management should be provided for in those compacts.[4] Some one agency must decide, even though it operates under rules laid down under agreement by a group of agencies, just when water is to be released from storage and how much.

Operating Functions Involved in Federal Power Enterprises

Our most important immediate interest, in unified operation, is connected with the development of power at Bonneville and Grand Coulee. The nature of the task involved in the most effective long-time program for achieving the maximum use of that power at lowest cost is set forth in another section of this report.[5] We assume the soundness of that analysis, and discuss from this point forward organization for operation as the alternative possibilities seem to facilitate or impede the fulfillment of those objectives. For the sake of clarity we itemize the specific functions that this larger purpose seems to require. They may be grouped into two classes, as follows:

A. Powers that should be entrusted wholly to the operating agency—

1. Major transmission lines (planning, design, construction, maintenance, and operation).
2. Interconnection of plants.
3. Interchange and dispatch of energy, and its measurement.
4. Design of power facilities.
5. Development of power markets.
6. Specific planning for further development of power system.
7. Sale of power (wholesale), the rates which it determines, with suitable control over resale rates.
8. Power production control.
9. Release of water from Federal storage reservoirs.

B. Powers that must be given but may be shared with other agencies—

1. Establishment of rates—might be shared with Federal Power Commission, but better results anticipated if latter agency functions in advisory capacity.
2. Purchase of power—contracts to be subject to criticism and advice of Federal Power Commission.
3. Power production—ought to be under complete control of operating agency but actual operation could be done by other agencies.
4. Release of waters stored by Federal works—within the provisions of interstate compacts and by cooperation with State agencies charged with the duty of water distribution.
5. Research and experimentation—operating agency should be expected to push this activity in directions aiding in widening power market but would cooperate with regional and State planning commissions and other research agencies.
6. Construction of new dams, reservoirs, etc.—right to decide when and what kind of hydroelectric installations to be in hands of operating agency; to cooperate with other agencies concerned with navigation, flood control, irrigation, and fisheries, as to when and where new dams and reservoirs to be built; construction to be given to Army engineers and/or Bureau of Reclamation, or other agencies.

Once the list of activities under A is accepted, it is clear that only one operating agency for these overall hydroelectric functions can be considered. The further question is immediately raised, should it be (1) the Corps of Engineers, (2) the Bureau of Reclamation, or (3) a new agency?

We postpone further consideration of that question until we can review certain general problems of administrative organization that have an important bearing on the answer which should be made.

The Relative Advantages of Bureau, Corporation, and Commission

Before we go further let us examine in some detail the relative suitability for these operating functions of three different kinds of administrative structure—a bureau, a Government corporation, or a commission. As we do this we should keep in mind the fact that the two existing agencies that have been "nominated" for the operating function are bureaus. While each of these has its unique features, which we will point out in a subsequent section, the general analysis which we give here will constitute, in effect, a description of many of the characteristics of the two bureaus with which we shall be particularly concerned—the Bureau of Reclamation and the Corps of Engineers.

Bureau Organization

It is our belief that the ordinary bureau organization is not adapted to many of the needs which are

[4] The technical reasons for these conclusions have been set forth in other sections of this report, sec. II.

[5] Appendix, on file at the offices of the Pacific Northwest Regional Planning Commission, Portland, Oreg., and the National Resources Committee, Washington, D. C.

basic to the best operation of a superpower system. Let us summarize some of the more important difficulties that the typical bureau would meet in trying to fulfill this function:

1. The bureau is tied to a department. Every department is a multipurpose organization, although in certain cases, of the many purposes that it has been designed to take care of, one or two may be outstanding. To engraft an operating bureau on any existing department in our present Federal administrative structure would mean that it would be tied to certain other tasks regarded as of primary importance. We have no public-utility bureau or department, except the quasi-judicial agencies, like the Interstate Commerce Commission, the Federal Power Commission, etc. These are not operating concerns, but are regulating agencies. A new bureau would thus be handicapped in the scramble for consideration at the hands of the head of the department by the older, well-established and primary divisions of that department.

2. Bureau organization means that the center of decisions and control is Washington. It is true that the degree of centralization varies from department to department, and, as in the case of the Department of War, certain bureaus and divisions are permitted considerable local autonomy. Nevertheless, for many of its administrative policies, a bureau must look to Washington. It seems very unlikely that any bureau organization can be given sufficient regional autonomy to meet either the democratic requirements of consideration for regional sentiment and needs, or the business demands implicit in the power business. The chief task before a bureau with which we are concerned is that of building up regional use of electric energy in order to absorb the maximum output released by these public works. To do this requires more than these public works. To do this requires more than ordinary ability to make decisions in the region.

3. A Government bureau is subject to the customary civil-service regulations. While making full recognition of the great progress which has been made since the Pendleton Act was passed in 1883, it must still be conceded that the techniques in use under our present Federal employment system are not yet adequate to the unusual needs of a new and developing public-service business. While it must be insisted that any agency created to undertake this task give careful attention to the selection of its staff upon the basis of merit, the devices for accomplishing this purpose must be somewhat different for some time to come than those found in our present civil-service regulations. It is the view of students of public administration that the time is not yet ripe to apply our Federal civil-service rules, unmodified, to what would be in essence a large public-utility business.

4. A bureau is not endowed with capital structure. It must depend for its investments in plant and for its maintenance and operating costs normally upon annual appropriations. For some purposes, Congress may pass a continuing appropriation, which means that the same sum for the same purpose is released year after year until the act is repealed. Annual appropriations must go through the usual budgetary procedure. This means that the bureau must present its estimates to the department and then to the Bureau of Budget, from which they go to the President, thence to Congress. Here it is needful to get clearly before us certain difficulties that are implicit in this procedure. It is impossible to estimate accurately either capital or operating costs for as long a period in advance of actual expenditures as the budgetary procedure requires. The business of selling power will be a fluctuating business, having its periods of rapid growth, slow growth, no growth, and perhaps corresponding declines. The preparation of estimates that have to go through the regular budgetary channels must begin nearly 2 years in advance of the time when the money will be completely expended. Two years' time is a very long period in the life of a power enterprise. The volume of sales may change and so require new capital and operation costs that must be met when they occur. To make this situation clear let us summarize the budgetary process. The Budget Bureau sends out its requests for estimates late in the summer for the fiscal year which is to begin the following July. For example, estimates are called for in August 1935. These will be under consideration and revision in the department or between the department and the Bureau of Budget during the following autumn and early winter. Before Congress meets, the President must consider them and decide what he will recommend, have the budget printed, and prepare his budget message. Congress meets early in January 1936, and the budget proposals are presented. If the proposals are enacted, the money becomes available July 1, 1936; but it is not fully spent until June 30, 1937. In this interval it is needful that the estimates prepared nearly 2 years before shall have accurately envisaged the expenditure needs and, in this case, the revenue returns which would occur during the entire fiscal year—July 1, 1936, to June 30, 1937. It should be apparent that a power merchandising concern cannot accurately forecast these budget needs so long in advance.

5. The life of a bureau is always subject to either extinction or suffocation by the failure of Congress to make appropriation or by its reduction of necessary

appropriations to such an extent as to cripple the bureau service. An illustration of this possibility is that of the commission created by Congress early in President Taft's administration—the Commission on Efficiency and Economy. This was a pioneer research commission which began the important work of revealing our national need for a budget system and for administrative reorganization. It so happened that a change in the complexion of the lower House in the middle of the Taft administration created a situation of antagonism between the Executive and the Legislature so that appropriations for this Commission were not made. It continued to have a legal existence but not an existence in fact. It should be particularly noticed at this point that it does not require the affirmative action of Congress to emasculate a bureau or commission. Evidence is still fresh that if an appropriation comes up toward the close of the congressional session, the filibustering by a single Senator may accomplish this result. Again, it is possible for a majority in one House to block a bureau appropriation desired by the other House and the President. It is also possible for the President, despite the desire of Congress to continue such bureau activity, to veto an appropriation for this purpose, though he would have to veto all items in the same bill.

It is also important to notice, while a bureau for handling such a function as that we are discussing would be created by the affirmative act of the two Houses and the President, indicating a rather unified national desire (so far as that can be expressed) that this service be undertaken, the bureau can be brought to an end merely by the negative behavior of a single one of the other partners in the national legislative process; and occasionally by the physical endurance of a single healthy Senator.

6. The legal powers of a bureau are specified in detail. It is, as a consequence, tied to the "letter of the law." Whenever a new situation arises not covered by the detailed grant of powers, it must supplicate Congress for the legal changes necessary to perform the task required. The bearing of this fact upon the functions which we are considering for the operation of public works is illustrated by an episode which occurred in the history of the Inland Waterways Service, while it was still an unincorporated agency within the War Department. There came a sudden and unprecedented drop in the level of the Mississippi and the Warrior Rivers, where the Service was operating its barges. As a consequence, the barges were stranded for some days, unable to collect or to deliver freight. The result was large financial loss, because the shippers had not received their freight. The Service was bound to recoup the shippers' losses and it lost new freight business during the period of enforced inactivity. This totally unexpected situation wiped out the profits of the Service and required the immediate ability to raise funds to pay the losses. The only legal way this could be done was to sell certain of the assets of the Service at sacrifice prices. Rather than do that the Service found it necessary "to make a hasty application to Congress for an appropriation. Fortunately this was secured but not until considerable doubt had arisen in the minds of various shippers as to whether or not the service would be continued.[6]

Another illustration of the kind of detailed powers which must continually be requested by the bureau is found in a recent act (Public, No. 409) passed by the Seventy-fourth Congress. This act is the river and harbor bill, which sets forth certain powers and duties of the Corps of Engineers. It appears that the Army engineers have constructed a water main to serve the Bonneville Dam activities on the Columbia. The town of Cascade Locks, which houses a number of dam workers, is a short distance above Booneville. It wishes to safeguard its population by improving its ability to cope with fires, and for this purpose has sought to secure water from the Government water main at the Bonneville Dam. Permission to do this, however, could not be given without special congressional authority, which has now been granted in section 11 in this new act, which reads as follows:

> SEC. 11. That the Secretary of War is authorized to grant permission, on such terms as he may deem reasonable, to the city of Cascade Locks, Oreg., to make connection with the Government-owned water main at Cascade Locks and take water therefrom for use for fire-protection purposes only.

Another illustration of the difficulties faced by bureau organization, when attempting to carry on business functions, is taken from the Inland and Coastwise Waterways Service (before it became a corporation). It was in need of terminal facilities in order to carry on its business properly. For this purpose it made a request upon Congress for money which was granted. It turned out that no provision had been inserted in the law specifically allowing the Waterways Service to buy land. On this account it found itself unable to use the money that had been allowed for building terminals until it resorted to the stratagem of lending money, which it had the right to do, to the city in which the terminal was to be constructed. The city thereupon bought the desired land and leased it back to the Waterways Service.

7. Any Federal bureau or commission partakes of the sovereignty of the Federal Government. It is,

[6] Van Dorn, Government-owned Corporations, p. 220.

therefore, immune from all liability for tortuous acts which it may commit. It cannot be sued except by the grace of Congress and that grace has always been very grudgingly given and when given limited very strictly in scope and time. This peculiarity, characteristic of bureaus and commissions which are the creatures of the National Government, is a matter of real importance when such a government agency undertakes the type of function which is essentially like the activities of a large private power business. The bureau in charge of such an undertaking must make contracts just as a private business would do. It will inevitably injure persons in the course of carrying on its business activity. High-tension lines and electrical equipment are no more immune from accident when owned by the Government than when owned by a private concern. If, therefore, they injure persons or damage property, the agency in charge of them ought to be obligated to care for such damage in the same manner that a private business would. It should not require a special act of Congress to permit a suit in the Court of Claims for such purposes. Nevertheless, a bureau or commission would have to be made specially liable or no rights of redress would vest in the injured parties. Even in the case of the Ontario Hydroelectric Commission, which has been named in the Ontario statute that creates it a "body corporate", the right of injured parties to sue the Commission for torts has been granted only in piecemeal stages. The Canadian and American legal theories on this subject are practically identical.

Public Corporation

In contrast with the bureau form of organization for operating a public-service enterprise, such as we are discussing, the publicly owned corporation possesses a great many advantages. Let us enumerate them:

1. A public corporation usually possesses a single large function, that of carrying on a particular kind of business. (This is not true of the Tennessee Valley Authority, as we point out later.) The directorate and management of such a corporation would be free from competition with other bureaus within the department, for funds and for the attention which is customarily essential to a bureau, since it would have its own financial basis of operation. It would probably lie outside any existing department. Its charter would state its powers in general terms. Should there be other corporations created for other regions, entrusted with similar functions, there will be need in the future for some cooperation in some of their activities. This seems most likely to be required in the research activities that such corporations may undertake, and perhaps with regard to their need for similar auditing services. If similar operating corporations are set up in adjacent regions, there will also be need for interconnections for the interchange of power.

2. A public-owned corporation would have its center of gravity within the region in which it carriers on its business. The management would have to be there. It would also be most likely that the board of directors would meet in the region, where the books and personnel of the management would be readily available for consultation and for inquiry. This fact is of importance also because it would facilitate presenting to the board of directors, as well as to the management, regional attitudes toward the corporation's business.

3. Corporations owned by our Federal Government have never yet been made subject to civil-service laws and regulations that apply to the bureaus and commissions. This appears to be desirable for, as indicated above, the services we are concerned with are essentially those of a business nature and, until greater flexibility has been introduced into the rules and practices concerned with the administration of the Federal civil service, it appears wise to exempt such corporation from their impact. It would be very difficult to meet business competition without such flexibility, although it should be clearly stipulated in any law creating such a corporate agency that it should create its own personnel system for the selection and promotion of men upon the basis of merit. What can be done in this direction has already been demonstrated by the personnel practices introduced by the Tennessee Valley Authority. "It is possible to achieve the benefit of a civil-service system by the establishment of traditions and practices without formalizing and rigidifying the regulations relative to personnel management."[7]

4. Perhaps the most important consideration is the effect of the corporate form or organization upon the financial stability and soundness of a large utility enterprise. Marshall Dimock, who, as a professional student of public administration, has given more study to this subject than any American writer, summarizes this phase of the situation succinctly in the following paragraphs:

> The principal advantages of a Government-owned corporation over an ordinary Government department are to be found in the ease and independence with which the undertaking's financial affairs and purchasing operations can be conducted. The ability to raise capital funds, the right to expand the business, the necessity of earning money before it can be spent, the assurance that income depends upon economic factors rather than upon the benevolence of the legislature, the right to borrow money on the

[7] M. Dimock, Government-operated enterprises in the Panama Canal Zone, p. 202.

corporation's credit, the freedom to build up reserves for the replacement of land and the expansion of the business, the knowledge that accounts can be kept on a business basis and audited in conformity with commercial practice, and the desire to run the business as efficiently as possible because the enterprise will be judged on its own financial showing—these are some of the respects in which the public corporation excels on the financial side in contrast with the Government department.

* * * * * * *

Corporate finance is more likely to encourage efficiency and economy than is departmental finance. When Congress makes the appropriation, there is a constant temptation for the department to be extravagant in case a prospective surplus appears at the end of the year, inasmuch as all such sums must revert to the Treasury; in the public corporation, on the other hand, surpluses are expected and nourished, inasmuch as the success of the venture and its ability to expand are judged by the earnings remaining at the end of the year.

The public corporation starts out with a lump sum, the capital stock, with which it can meet emergencies and develop the business as necessity and experience dictate; the great tragedy of the Government department is that no matter how efficient or how successful it may be, the means whereby it may expand are controlled firmly by the legislature instead of being in its own hands. With its nest egg the public corporation may divert funds originally intended for one phase of the business to another, if wise business policy so counsels. . . .

Not only does the public corporation have an initial financial advantage over the ordinary Government establishment, but it can borrow on its credit as emergencies arise or as the desirability of expansion occurs. If the Panama Canal were incorporated, for example, it could issue bonds or make short-term loans from banks—power which it lacks at the present time. It must be obvious that any commercial undertaking, particularly a competitive one, must be vouchsafed the right to borrow on its credit, because sooner or later it is almost sure to need this right.

Congress has usually placed an outside limit on the amount which a Government-owned corporation will be permitted to borrow, and this is probably a wise precaution. . . .

The right of a public corporation to retain its annual earnings over and above a fixed payment, which goes to the Treasury, and to use said profits to build up a financial reserve and to undertake financial improvements—this right is proof positive of self-contained finance. Without such a guaranty no public corporation can be expected to be a complete success for very long. The right to retain profits provides an incentive which produces efficiency and enthusiasm. Any capable executive values the assurance that his particular enterprise has financial reserves that it can fall back on, and it is only human to want to expand one's business. The significance of these incentives should not be minimized. Judged by any standards, it is sound policy for an enterprise to retain its profits and to expand its services so long as it is rendering an efficient and a profitable service.[8]

Let us point this discussion toward our immediate electric power operating problem. No administration will be sound which cannot be made financially stable. This implies that there shall be no permanent subsidizing of the service. Any primary lowering of rates for the sake of developing load or any postponement of interest charges should be worked out with the deliberate intention that the system will be obliged at the proper time in the future to assume full responsibility for those charges. No Government department nor ordinary commission can properly be charged with this necessary financial responsibility, since it does not control its own budget, including its revenues. If the whole financial liability is simply carried by the Federal Government as an integral part of its general debt obligations, there is created a fundamentally anomalous condition. The productive investment which is represented by the amount of funds expended in the construction of these works is confused with all the other forms of Government spending; accordingly, this productive investment is placed in jeopardy with every drive which is made, justifiably in some cases, against Government spending.

5. Closely related to the financial question just discussed is the difference that exists, or should exist, in the accounting and auditing practices of a corporation as compared with a bureau or commission. Accounting systems serve not only the purpose of furnishing information about the legality and honesty of operations, but are of primary importance as tools of management. Corporate accounting systems, with their need to use cost accounting practices, are particularly adapted to the carrying on of business functions. They differ markedly from the systems in vogue in departmental and bureau accounting which are concerned primarily with honesty and legality.

6. Government-owned corporations are liable for torts committed against private persons. While the Government cannot be sued, as indicated above, without its own consent, a Government-owned corporation may be. "In order that no question of immunity may possibly arise, Congress, when creating public corporations by direct action, has inserted a specific provision authorizing the corporation to sue and be sued.[9] No doubt this is a desirable precaution. However, when the Emergency Fleet Corporation attempted to claim that it partook of the sovereignty of the Federal Government and hence could not be sued, the Supreme

[8] M. Dimock, Government-operated enterprises in the Panama Canal Zone, pp. 203–206.

[9] Ibid. p. 209.

Court held that it was answerable for its acts as was any other corporation, even though it was the agent of the Government." It may be said, parenthetically, that the Emergency Fleet Corporation was not incorporated by congressional act, but under the general incorporation laws adopted for the District of Columbia.

Commission Organization

The term "commission" has been applied to a number of different purposes in connection with public administration. One kind of commission is a policy-making agency. This may be permanent or intermittent. Suggestions have been made by chamber of commerce groups in this region that such a commission or board should be created to determine rate policies and perhaps certain other joint interests of the hydroelectric enterprises at Bonneville and at Grand Coulee. The anaylsis of the power problem made earlier in this report and of the functions which need to be undertaken, makes it clear that such a policy-making and coordinating commission is quite inadequate. We therefore dismiss that kind of commission from consideration and turn to a second type, which is an administrative commission, created to carry out an important administrative task of a permanent and continuing character. This is usually a group of three or five persons directly in charge of an administrative service. This form of organizing an operating agency for the special public business with which we are concerned suffers from many of the difficulties outlined in our analysis of the bureau form of organization.

1. A commission, like a bureau, must depend upon Congress for appropriations each year, unless Congress should do the unusual thing of adopting a continuing appropriation for such an agency. A continuing appropriation would be a fixed sum for specified purposes, released each year until repealed. That method of financing current operations would be quite inexact and rigid, taking no due account of the changes in current needs as those needs fluctuated from year to year. Revenues from the enterprise under commission direction would normally be turned into the general treasury, instead of remaining as a part of the source of finance with which to carry on operations. If the commission were allowed to retain its receipts, then obviously a continuing appropriation would be entirely unsuited to the fiscal situation thus presented. As for capital funds for investment purposes, a commission has ordinarily to ask for these when it needs them, and unless Congress were willing to adopt the extraordinary practice of making a large sum available to be drawn upon from time to time as the commission might require, the commission would be compelled to go to Congress each year and ask for money with which to build its transmission lines and install its other capital equipment. Without such resources, were an accident to occur which involved the destruction of large capital equipment, the commission would very likely not be able to replace such structures without special congressional authority. In the meantime, the entire enterprise might be stalled. It is, of course, conceivable that Congress might exempt it from annual appropriations and might furnish it with the financial resources to deal with its needs in a manner comparable to that of a corporation. If so, it would be a drastic departure from past practice and tantamount to clothing the commission with corporate powers.

2. A commission would be free of the competitive struggle for recognition among other bureaus within an established department, for it would presumably be set up as a special independent establishment. If the members were chosen solely with reference to their fitness to perform the duties entrusted to the commission, it ought to be as well guided as a corporation would be. However, if the commission is composed of representatives from other Federal bureaus or departments, then decisions would tend to be made by those representatives after consultation with or in the light of the views of the chief of the member's bureau. So far as these members are concerned, the result would be some degree of "remote control" in the Washington offices of these agencies. Moreover, these members would not be primarily interested in the commission's functions since their main job would be that of working for the bureau or department to which they were attached. Nor is it likely that they would be especially equipped either in terms of technical information or social orientation to deal with the functions of this agency with most effect, unless, as in the case of the Federal Power Commission or the Rural Electrification Administration, their own departmental functions bore first-cousinly relationship to those of the commission itself. If representation should be given to any of the bureaus which have expected or wanted to perform the functions the commission will take away from them, it seems almost inevitable that the commission will lack the drive and the enthusiasm for making the most of a great opportunity to pioneer in a new regional enterprise.

3. Commissions have not customarily been given any more freedom in the management of staff personnel matters than Federal bureaus. However, Congress could change the situation and permit the same freedom that it has customarily allowed to corporations.

4. The commission, like the bureau, would be dependent upon Congress for amendments to legislation

whenever new situations arose not covered by the specific grants of power under which the commission was operating. Here again it resembles the situation of a bureau. Again, it may be possible for Congress to grant a scope of power similar to that of a public corporation, but, if this were done, such grants would have to be couched in the general terms customarily used in corporate charters; otherwise there would be the need for continual legislative tinkering in order to meet new situations involved in running the power business. We have already given examples of these difficulties in the discussion above.

Another example which might be cited at this point is one which occurred in the history of the Inland and Coastwise Waterways Service, before it became a corporate organization. Like the regular bureaus and departments, that Service came within the rules which govern the making of government contracts. Those rules contain the provision that no contract when made may be modified except in the interest of the Government and that such modifications must be approved by the Comptroller General. There can be no doubt that this is a very good rule for an ordinary departmental bureau or commission business. That it does not suit all situations which a power commission would be likely to meet is shown by the example given in the following:

> . . . the Inland and Coastwise Waterways Service made a contract with a shipbuilding company in New Orleans for the remodeling of several barges. Under the terms of the contract the Government agreed to deliver the barges to the company at a certain time and the company agreed to complete the remodeling by a specified date. Due to unavoidable circumstances the Government was unable to deliver the boats at the time agreed upon and the company was therefore delayed in carrying out its part of the contract. The administrator in charge of the Service, recognizing that the Government was at fault, returned the $2,500 which the company had forfeited under the contract. The company was satisfied and so was the Service. The Comptroller General, however, maintained that the contract had not been altered in the interest of the Government and insisted that the penalty be re-collected. This was done and as a result the company sued the Service for $30,000 for failure to furnish the boats in time. This situation would certainly have been avoided by the Inland and Coastwise Waterways Service had it been allowed the freedom of contract which it now has as a Government-owned corporation.[10]

If Congress attempted to give the commission a general grant of power similar to that which is used in chartering corporations to which it has given birth and if that general grant escaped the legal pitfalls as to its validity, then the commission would be in effect a corporation. Should those powers include an authorization of capital funds sufficient to build up the business of the commission, and should it include the other freedoms from annual appropriations, etc., the commission would be a full-fledged corporation, minus the usual paraphernalia of stock voting and the name of a board of directors. In this last respect, be it noted, the Tennessee Valley Authority, a corporation, is not typical. It has no voting stock. Its directors are administrators who are in charge of the departments of a large business and so their functions resemble the activities of an administrative commission. A commission rebuilt to such corporation specifications as to suit the needs of operating a super-power system would be so little different from the normal corporate organization as to present no important reason for serious difference of opinion, excepting that of the name and the manner of selecting members.

Unified Operation Under an Existing Agency

There can be little doubt that the operation of the hydroelectric-water-control function by a single bureau would be definitely superior, as a permanent plan, to operation by two different bureaus. It would provide the unity of management, which, if our analysis in the first chapter of this section is sound, is indispensable to success.

Qualities Required in Operating Structure

At the risk of repetition let us restate the qualities, which in addition to unification of management, must be sought for in the operating structure. We want to secure (1) "driving power and administrative talent adequate to secure the maximum social advantage" from these public works, (2) the maximum "responsiveness to regional sentiment and desires", (3) "the maximum protection of the national interest" . . . "through proper attention to the business requirements of the enterprise", and (4) the best "articulation with regional planning."

Qualities of Existing Agencies

We must at once recognize that both agencies suggested as possible candidates for this operating task have many meritorious qualities. No one can doubt the engineering competence of the Bureau of Reclamation or the Corps of Engineers for the work with which each has long been identified. The record of achievement of the Reclamation Service engineers in designing and constructing some of the greatest dams in the world is clear to all. Similarly the Corps of Engineers has demonstrated in all the parts of the

[10] H. A. Van Dorn, Government-owned corporations, p. 267.

Nation having river and harbor facilities its dependable talent for the construction and maintenance of these public works. Not least in our consciousness is the speed and success with which the great works at Bonneville and Grand Coulee are now proceeding under the engineering direction of these two bureaus.

Nevertheless, despite these facts, it is true that the engineering emphasis required to the power operations with which we are particularly concerned is rather different than either bureau is now equipped to give. Each has had operating experience, but of a distinctly limited character, with hydroelectric generation and transmission. Neither has ever managed a supergrid power business, such as will be possible and, as has been argued elsewhere in this report, is required if fullest social use is made of the power from Bonneville, Grand Coulee, and future works. The specialized engineering skill and the business personnel which will be needed to perform this operating task would have to be created by whatever agency is entrusted with this responsibility.

Most of the disadvantages attaching to the bureau form of operation, which we have noted in the preceding chapter, would be present whether the Corps of Engineers or the Reclamation Service were placed in charge. Let us notice another bureau situation unfavorable to highest success. The minds directing a modern power network need freedom from the traditional routines which the bureau environment appears to develop; they need broad and penetrating conception of the social implications of their work, and the capacity to drive through the obstacles that stand in the way of those objectives. What is called "red tape" is necessary in considerable degree in the regular Government department, since it is a guarantee of uniformity of treatment. Men become accustomed to restraints upon initiative and, as a consequence, frequently lose the desire to show too large an imaginative grasp of the possibilities of their work. The atmosphere of the bureau organization is not congenial to the qualities which need to be enlisted continuously in the direction of the important business enterprise we are discussing.

We must also note that what is urgently needed is the establishment of an operating structure that will be favorable to the use of an accounting system like that of a private corporation, designed to maintain a soundly managed, economic enterprise. Over a period of years, the power enterprise should pay out, or at least make clear to itself and to the public the reasons for which and the extent to which it is unable to balance its accounts. The bureau form of organization is not likely to be favorable to this continual scanning of the balance sheet, notwithstanding its sensitivity to congressional criticism.

Bureau of Reclamation

If we look at the Bureau of Reclamation we may note certain advantages it possesses. It is greatly interested in the use of the Columbia River system, and the construction of multiple-purpose works. This interest is particularly pronounced in the upper river and in the tributaries east of the Cascades. It is charged with the construction of the Grand Coulee project on the upper Columbia. It was the constructor of the Boulder Dam on the Colorado. It has done a great deal of construction work, some of which has led to the building of electric power plants and their subsequent management. These power operating enterprises have been incidental to irrigation and, while important, have not been on a scale comparable to Grand Coulee or Bonneville.

On the other side of the ledger must be placed the fact that the Bureau of Reclamation has as its specialized purpose the reclaiming of arid land for agriculture, although the duties have greatly broadened since beginning. The ultimate function, whatever engineering skills are used, is an agricultural one. Very properly, therefore, the primary concern of the directing executives must be the agricultural success of their work. This is not the most favorable orientation for managing a superpower business to serve every vocational group in the Pacific Northwest. It is necessary also to call attention to the pattern of organization within the Bureau of Reclamation. This is one of a high degree of centralization. Doubtless that form of organization has been the product of its own peculiar needs, but it would appear to be rather unfavorable to ready response to regional desires if decisions were to be habitually referred to the Washington or Denver headquarters. While in recent months a regional officer has been selected to act as project coordinator (in operation and maintenance), it is doubtful if that device would meet the requirements for decentralized management which we regard as fundamental in handling the power function.

Corps of Engineers

The Corps of Engineers has a larger jurisdiction over multiple water purposes than does the Bureau of Reclamation. While it began its civilian service as an agency for the improvement of navigation (and its major function is still related to that task), it has taken on many added civil duties connected with river and stream improvements. The scope of the present activity of the Corps of Engineers is well indicated by

instructions appearing in one of the sections of the River and Harbor Act of March 3, 1925, in which the Corps of Engineers and the Federal Power Commission were enjoined to report and recommend concerning investigation on navigable streams and tributaries:

> Whereon power development appears feasible and practicable, with a view to the formation of general plans for the most effective improvement of such streams and for the purposes of navigation, and the prosecution of such improvement in combination with the most efficient development of water power, the control of floods, and the need of irrigation.

After the submission of the "308" reports by the Army engineers, Congress directed (in the River and Harbor Act of Jan. 21, 1927) that surveys be made on various streams which include the Columbia and its more important tributaries, the most important streams emptying into Puget Sound and the North Pacific, and the Missouri and its major upper tributaries.

In the session of Congress just closed, the planning jurisdiction of the Corps of Engineers over electric power (and other) developments on the rivers of this region was further extended by Public Act No. 409, which reads:

> . . . and that hereafter Federal investigations in matter of rivers, harbors, and other waterways shall be under the jurisdiction of and prosecuted by the War Department and under the direction of the Secretary of War and the supervision of the Chief of Engineers, except as otherwise specifically provided by act of Congress.

The right of this bureau to conduct continuous studies of electric power and other river questions was further amplified by section 6 of the same law.

The Corps of Engineers is charged with the construction of the Bonneville Dam on the lower Columbia River and with the improvement of the river and its major tributaries for navigation. Further major construction projects of the future for navigation and power, as for example the Umatilla and The Dalles, will fall, logically, to its lot.

It is clear that the experience of the Corps of Engineers and its wide jurisdiction over the water resources and their multiple uses gives that body a closer connection with the proposed operating service than is true for the Bureau of Reclamation.

Another advantage of the Corps of Engineers is the flexibility of its organization. It is much more decentralized than the Bureau of Reclamation. In fact it is one of the best examples of good bureau organization for a regional enterprise. At the present time its policy leaves large freedom of judgment to the division engineers and to the district engineers within their respective areas. Moreover, the relationships between the district and the division are not frozen, but, on the contrary, are flexible, permitting the degree of district or divisional autonomy to vary with changing circumstances and needs. There is a similar flexibility as between the division and the Washington office.

It is also true that the north Pacific division of the Corps of Engineers now coincides in territorial boundaries very closely with the Pacific northwest region. As a consequence of these organizational facts, the Corps of Engineers is in a position to respond more quickly to the desires of the people of the region than is the Bureau of Reclamation.

There are, however, certain disadvantages of the Engineers' organization, which are peculiar to it, and not shared by bureau organization generally. The members of the Corps of Engineers, who direct the work, rotate from district to district in search of a variety of engineering experience. Rarely do they stay longer in one district than 4 years. From the military point of view this is sound practice. From a civilian point of view, which is concerned with this new function, a rotating directorate is not desirable. It is fundamentally incompatible with the effective development and management of a great vital public business, which requires continuity of planning control. The undoubted success which the Ontario hydroelectric enterprise attained during the first 20 years of its activity was in very large part due to the continuous direction of a very gifted man who served during that entire period. Sir Adam Beck not only launched that great project but guided and directed its lines of growth for nearly a quarter of a century.

Probably the greatest disadvantage of the Corps of Engineers is that the primary concern of the service, by virtue of its origin, is the Military Establishment. Our problem is the operation of a great business civil function which, were the Corps of Engineers to be in charge, would be controlled by officers of that branch of government, primarily trained, not for the peacetime pursuits of business and industry, but for military defense and war. The conviction is widespread that the custom and social traditions of Army officers are peculiar to that vocation and set them somewhat apart from civilian society, with its rather different gamut of life experiences, its different problems of economic maladjustment, and its peculiar aspirations for a more abundant civil life.

Conclusion

The writer is convinced that neither the Corps of Engineers nor the Bureau of Reclamation should be assigned to this new regional operating service. Instead, the unique character of the task and its key importance calls for the creation of a new and special

44831—36——14

Federal operating agency. There are so many far-reaching possibilities of social benefit to our people which may come from this great natural resource that the President should be free to comb the entire Nation to find the men, whether they be in public service or private business, with social insight and business judgment adequate to bring these things to pass. Whoever is selected to direct this enterprise must start free from loyalties to established competing Federal bureaus, or to competing private utilities. It requires men with a talent for public business comparable with the capacity of our ablest captains of private enterprise; they must have a public rather than a private point of view toward their task.

Proposed Operating Organization

Duplication of T. V. A. Not Advisable in Pacific Northwest

In planning the scope of power to be given to a Government corporation or commission for operating public works in this region, it is desirable to consider the applicability of the Tennessee Valley Authority Act to the Pacific Northwest. We have found certain aspects of the social purposes and the corporate structure of the T. V. A. very useful in our consideration of operating organization for public works on the Columbia. However, we have reached the conclusion that the scope of duties entrusted to that agency is broader than is appropriate here. This is true in part because of a number of events which have transpired since the creation of the Tennessee Valley Authority, and also because of certain important differences between the two regions.

Shortly after the Tennessee Valley Authority was established, the Soil Erosion Service [11] was created, operating inside the Department of the Interior. It is now extended on a Nation-wide scale, with its own staff of experts and with large allotments of funds for demonstration projects and for educational purposes in the interests of soil conservation.

The Tennessee Valley Authority undertook as one of its functions the conservation of soil from erosion. The nature of the soil, the rainfall, and the despoliation of the forests in that area make soil erosion a matter of grave importance not only to the farming classes and to their dependent communities, but to the Government agencies operating the dams on the Tennessee River and its tributaries. Unless erosion is checked soon not only will irreparable damage be done to agricultural interest, but the reservoirs will be silted up. While, in the Pacific northwest region, soil erosion is a fact, and a matter of real importance, it is not nearly so closely related to the main public works enterprise.

The areas within the region where soil erosion is most acute are east of the Cascades. Some of them lie outside the Columbia Basin and, while most of them are embraced within the region, they have relatively little effect upon the reservoirs that may be created. The Soil Conservation Service has made a very competent beginning in this region, and has recently received authorization for increased expenditures here for control and demonstration purposes. There is no good reason to think that the work of the Soil Conservation Service, now well under way, could be better done by a Government corporation or commission performing many other functions.

This is a function large enough and important enough to require unified national management. To handle it successfully involves the creation of a staff whose special competence will have very little connection with the business of generating and distributing electric energy. It would, therefore, seem quite unwise to transfer jurisdiction over this agricultural problem to the agency having power as its principal function.

Another national service now in the process of rapid development is the Resettlement Administration. This, too, has come into being since the Tennessee Valley Authority was created. The Resettlement Administration will undertake to deal with the problem of submarginal lands, by withdrawing them from inappropriate uses and finding locations on good soil to which the population displaced from the former areas may move. There are many problem areas of this sort in these four northwestern States. Certain of the State governments—notably Montana, have been vigorously prosecuting a similar objective (through the provision of water-conservation projects permitting extensive resettlement). It would appear that the nature of the functions involved in resettlement tie much more closely into the activities of the Forest Service and other agricultural agencies than into the tasks involved in operating the hydroelectric public works. An early project requested by Administrator Tugwell was one involving a forest-homestead project in Lane County, Oreg. This is to be a joint program of the Resettlement Administration and the Forest Service. It is to provide for settlers who will engage in farming and in seasonal work in the timber and sawmills. This is cited as an example of the kind of activities involved in resettlement work on the western slope. It is clear from this example that it has very little direct functional connection with the Columbia River power projects.

[11] It has since been transferred to the Department of Agriculture and is now called Soil Conservation Service.

Let us hasten to add that there are doubtless possibilities in which the work of the Resettlement Administration may be aided by the power-rate policies adopted by the agency in charge of Bonneville and Grand Coulee power. Nevertheless the work of this new Nation-wide organization is on the whole a distinctly different function. It, too, calls for concentration of purpose, and specialized skill in order to be successful. Coordination with the other activities including the transmission of electric energy will be needed, but it is not at all clear that that coordination would be best achieved by permitting the organization which would operate hydroelectric enterprises to swallow up the Resettlement Administration in the region in order to coordinate it.

The Tennessee Valley Authority gave birth to another activity that has subsequently been expanded on a national scale. This is the encouragement, by low-cost financing, of the construction of rural electric lines and the stimulation of increased consumption of electric energy by the masses of the people through the promotion and sale of standardized low-cost electric ranges, refrigerators, etc. The Rural Electrification Administration now offers to this region, as to all other parts of the Nation, the opportunity to share in the benefits of this service. Doubtless the controlling authority over the Bonneville, Grand Coulee, and other electric generating projects would be concerned with acting in close harmony with the R. E. A., but there is no good reason, in view of the existence of the latter, for it to duplicate the functions which the R. E. A. has assumed.

The Tennessee Valley Authority has also undertaken the task of adult education and of modifying cultural habits and attitudes. Here it is doing the work of a properly organized system of education. It may well be that such functions were particularly required in that region. Despite the existence of many economic and social maladjustments within the Pacific Northwest region, it is very doubtful whether a duplicate of the Tennessee Valley Authority in this region could accomplish nearly as much in this direction as can the existing public and private educational agencies. These are well organized and on the whole are much better equipped to do such a herculean task. When the power-operating agency undertakes a large construction work, it might very well emulate the example of the T. V. A. in training its temporary employees for skilled craft or industrial work. Like the T. V. A. it ought, as a part of an enlightened labor policy, furnish adequate opportunities either in its own establishments or in cooperation with existing educational institutions for improving the vocational education of its own employees.

It is also true that there are acute difficulties in the Northwest where mining activities have come to an end and left miners' families stranded, and where lumber operations have cut the available timber and left mills and whole towns in decay. These are challenges to the States and national services within the Northwest region. They are symbols of what may go on in increasing volume during the next 20 years, unless the steps which have been pointed out earlier in this report are taken to deal with them.

It is distinctly possible that from the Government public works on the Columbia and its tributaries, which produce the electric energy that ultimately is to be poured into a super grid system, may come certain forces that can assist in rehabilitating the population in certain of these exhausted mining and cut-over timber areas. One way in which such assistance may be rendered will be through the creation of a power-rate structure which will encourage the decentralization of industry. If a blanket rate structure is established for large areas, it may be more practicable for the Resettlement Administration or other agencies to assist the people of the stranded towns in the denuded timber and mining districts to establish small industries. What can be done in this direction to salvage these communities or to stabilize them in the future cannot be forecast at this time.

The real solution for this basic difficulty which confronts the mining and timber areas is a change of an almost revolutionary character in our attitudes toward the conservation and exploitation of these resources. What is required, in the way of legal and administrative changes, has been indicated in the sections on forestry and mining. These proposals have little relevance to the functions of a T. V. A.

The directorship of an operating concern having the diverse functions of a T. V. A. makes unique demands upon human capacity. Granted that this capacity has been discovered in the admirable personnel that now guides the destinies of that corporation, it is unwise to predicate schemes of public administration upon their recurrence. Effective public administration normally requires that a single major purpose or a limited group of closely related purposes shall be entrusted to one administrative organization. Any plan which violates this canon gambles with the future. Speculation of this character may have been well justified in the Tennessee Valley situation. Reports from students of public administration who have examined the work of the T. V. A. are very complimentary to the administrative talents displayed. Yet, in view of the consideration which we have outlined above, we doubt the wisdom of proposing a Columbia Valley Authority with duties duplicating the T. V. A.

There is a further reason that fortifies this conclusion. A corporation undertaking so many ameliorative and philanthropic tasks in addition to its power operations will find it very difficult to refrain from continual subsidy of the former purposes from power revenues. Either it must carry these on with funds secured from its business operations or it must make continual requests for congressional appropriations. When the mood of Congress changes concerning the ameliorative functions of the corporation, as is quite possible, and new funds denied, either these activities must stop or be financed from power earnings. This will thoroughly confuse the issues. The success of the federally owned and operated power enterprises seem likely to be jeopardized by this admixture of tasks.

The Nature of an Operating Organization and Its Articulation With Regional Planning

A corporation (or a commission endowed with corporate powers) should be created by act of Congress endowed with the usual rights and obligations accorded to Government-owned corporations—to sue and be sued, to make contracts, to purchase and lease property for carrying on its business and to do all things necessary to fulfill the functions (as already listed) which are needed to achieve successful operation of Federal power enterprises.

In the writer's opinion, this agency should be controlled by a board preferably of three members, two of whom should be nominated by the National Resources Committee (or its permanent successor) and appointed by the President. The third member should be appointed by the President upon his own motion. These directors should be chosen from whatever part of the United States might yield the desired personnel. All three members should avow their belief in the purposes and feasibility of the enterprise.[12]

It is desirable that one of the two members suggested to the President by the National Resources Committee should be called the chairman of the board of directors, the other member made the chairman of the regional planning commission. The chairman of the corporation should also be a member of the regional planning commission. Both should be men with such broad experience and training as to give them unusual insight into the economic and social objectives at stake in the power enterprise and in the task of planning for the conservation and wise development of the resources of the region. The board ought to have the capacity to present the corporation's power program and planning to the people of the region, to be able to give such effective direction to the research and planning staff as to facilitate the integration of regional with national planning policy.

The relation of the board of directors to the administration of the corporation needs explanation. Instead of assuming the burdens of administrative direction, the members would assume the functions of the usual private corporation directorate. They would decide all important questions of corporate policy but leave the management in the hands of administrators whom they would employ. In this respect their functions would differ from the directors of the T. V. A. The reasons for departing from the pattern of that organization are set forth convincingly in the special study made by Marshall Dimock for the national committee on regionalism of the National Resources Board. He says:

> . . . the three directors of the T. V. A. have divided their supervisory work into three parts, and each has the primary responsibility for the carrying out of the functions falling within his allocation. Although the agreement through which this allocation was effected states that "this does not mean that the individual directors will formulate policies for their separate divisions. The board as a whole will continue to adopt all policies", nevertheless such an administrative arrangement is of doubtful wisdom. It is almost inevitable that each director should come to look upon his sphere of control as his particular bailiwick, and consequently integration of policies and programs becomes increasingly difficult. If the board were to consist of five rather than three members, the temptation to divide the detailed duties would be lessened, and the way would be opened to more effective concentration upon planning and policy formation on the part of the board acting as a unit. This is simply a recognition of the principles of sound corporate administration, under which the board of directors should be the policy-formulating unit, and although exercising complete surveillance and ultimate control over the management, should not interfere with administrative details. Under such an arrangement, the crying need is for a general manager of the corporation who is given complete administrative control over every phase of the organization's activity. Such an officer is nowhere to be found in the T. V. A., since the directors have been reluctant to relinquish the administrative power which they have assumed. However, the integration and coordination of activity which would result from the creation of the office, let us say, of the president of the board and general manager, would be very beneficial. Regional development authorities, like other going concerns, need unity of management. Above everything else at this juncture the T. V. A. demands synthesis of policy and planning activities and integration of administrative functioning. The common corporate practice of making the president of the board also the general manager may quite conceivably be the

[12] This last suggestion is copied from a provision in the T. V. A. Act. While the full force of the sanctions of the oath has doubtless greatly diminished in modern times, it is desirable to use every feasible device to insure against the acceptance of a place on the board by persons hostile or unsympathetic toward the objectives of the organization. See also recommendations of Regional Planning Commission, p. 9.

best policy for regional authorities to follow. If there were integration at the top there would soon be coordination all along the line—in planning, in research, and in industrial promotion.

The chairman of the board of directors might well assume the duties that the chairman of the Ontario Hydro-Electric Commission performs. He is the only member of that commission that draws a full-time salary from the commission. His work is not so much administrative as it is the handling of public relations and dealing with the provincial government to which the commission is responsible. Most of the management direction is in the hands of a unified management staff. This is similar to the suggestion made by Mr. Dimock for T. V. A.

As we indicate below, the initial capital for financing the corporation's work would be furnished by the Federal Treasury, but there ought to be a provision in the charter law allowing any or all of the four northwestern States to furnish new capital. If any State should take advantage of this provision, it should receive voting power, through a State representative (perhaps the chairman of the State planning commission), proportionate to its financial investment.

The purpose of this suggestion is to allow the people of the Northwest to share in the financial obligations as well as the benefits of Federal investments in these large public works. It would also constitute an incentive to supplement existing works with new enterprises of special concern to certain of the States.

The formulation of planning policies for the corporation ought to be closely tied with the general task of regional and State planning. This may be partly accomplished by the interlocking directorate device suggested above, and partly by making the full regional planning commission (as has been proposed hereinbefore) an advisory board to the corporation. This should be included in the law creating the corporation. It would be wise to provide that immediately prior to every regular meeting of the directorate, a meeting of the regional planning commission should be held at which time suggestions might be freely offered by any or all members of the regional planning commission concerning the activities of the corporation, and also at which time the advice of this group should be solicited, by the board of directors. It may even be desirable to provide this advisory committee with a right to make investigations into the work of the corporation and to publish the results of its inquiries. For this purpose, it would need to be endowed with the legal right of access to the books of the corporation and to information possessed by its officers and its employees.

Since the States will be represented on the regional planning commission this advisory committee relationship would provide a splendid channel of communication between the people of the region and the Federal operating body. The Federal bureau representation on the planning commission would also be in a most advantageous position to present the relationships of their work to the power function.

Another reason for these close ties is the need to articulate the research work of the corporation with the regional planning commission. The research work carried on by the corporation would probably center in those directions concerned with the development of markets for power, and particularly in the field of new applications of power for the extraction or refining of natural resources. Not only would it desire to have its own research staff for certain of these purposes, but it would find it advantageous to subsidize research being carried on by certain of the State institutions of higher learning, other governmental or semipublic research agencies, or the technical subcommittees of the State and regional planning commissions. At the present time the technical subcommittees of the Washington State Planning Council are engaged in work on electrical house heating, on the use of minerals, etc., which would be directly serviceable to the power corporation.

The regional planning commission would be needed to take the lead in negotiating the interstate (and international) compacts that will ultimately be needed for allocating the waters of the Columbia and its eastern tributaries between the interested States. It ought also to be a key agency for facilitating the making of allocation rules concerning the water needs of the competing Federal and State interests—navigation, irrigation, power, fish, etc.

This design of planning organization would implement planning in a way which otherwise seems impracticable of attainment. It will tie planning to the hydroelectric program and permit it to share in the work of that key activity. It will also make coordination real. It should be kept in mind that real coordination is impossible of attainment unless the coordinators know rather intimately the different activities going on in the region. Unless a planning board knows what is being "ordered" it cannot "coorder" parallel or conflicting behavior.

The plan suggested ought to provide ample safeguards against the bureaucratic tendency imputed to Federal departments. There should not be much "autocracy" on the part of a corporation whose directors must listen to the advice of the planning commission and whose chairman and vice chairman will be in con-

tinuous contact, through their regional planning functions, with the spokesmen of the people in the region.

Financial and Other Provisions of the Proposed Corporate Charter

Capital.—The allocation of the costs of Bonneville and Grand Coulee and later works should be made by a board selected for that one purpose by the President. It ought to contain representation from the Corps of Engineers to safeguard the interests in navigation and flood control, from the Bureau of Reclamation, and from the board of directors of the corporation. Perhaps additional membership should be provided, making a board of five.

As soon as the allocation of costs of the Bonneville and Grand Coulee Dams shall have been made, setting up the items chargeable to navigation, irrigation, hydroelectric generation, flood control, and unemployment relief, that part of the cost due to generation of electric energy should be set up on the books of the corporation as an investment item in the "capital" account.[13] (It is assumed that no such allocation will become effective as an obligation of the corporation's capital account until the structures are finished and ready for the transmission of electric power.) A depreciation account should be set up, in accordance with the depreciation rules of the Federal Power Commission, covering all capital investment. It should be possible to use, under the regulations of the Commission, certain portions of the depreciation reserve for new capital construction. As soon as the finances of the corporation permit, it should be allowed to set aside a fund from surplus for operating capital. Other surplus funds should go, after a period of 30 years, to amortization of the investment. Here again, the rules developed by the Federal Power Commission (except for the change from 20 to 30 years) should be followed.

Additional capital for new construction of transmission lines, substations, etc., for the grid system and for completion of the generator installations at Bonneville and at Grand Coulee, and for other capital expenditures needed in the business of the corporation should be supplied, initially, from the Federal Treasury. Operating capital should also be provided from the same source until the returns from the business show sufficient surplus to create the operating fund suggested above. The initial capital fund to an amount not exceeding $50,000,000 may be obtained by the issue of serial bonds by the corporation on the credit of the United States, with maturities not greater than 50 years, and with interest not over 3½ percent, using the same provisions concerning the way these shall be issued and their legal status as are found in section 15 of the original T. V. A. Act.

Another possible method of securing the needed capital would be for the Federal Government to issue a special kind of security, either with or without Treasury guarantee, to cover the total capital expenditure which is properly allocable to power. This is the practice which has been followed in the provision of capital both for the Ontario Hydroelectric Commission and the Central Electricity Board of Great Britain. It has two important virtues in that it turns the whole financial orientation from that of spending to that of investment; and it places upon the shoulders of the power administrative organization full responsibility for making services economically self-supporting.

When other dams, from which electric energy is to be generated, are needed (e. g., the Umatilla, Hungry Horse, or Snake River Dams) the corporation should make a special report to the President, setting forth the facts and indicating the desirability of such structures for the effective fulfillment of the corporation's purposes. It should also indicate the kind of structure to be erected, with the probable distribution of expense as between power, navigation, irrigation, and flood control, and recommend to the President such appropriations from the Federal Treasury as may be required to build such structures. In making such report, it should cooperate with and receive the help of the Corps of Engineers, the Bureau of Reclamation, and the regional planning commission. It should be permitted that any of the States of the Pacific Northwest region may furnish capital required for such new works (as, for example, in the development of the Willamette River) and thereby become a joint owner of the corporation with voting privileges proportionate to its capital investment.

In the case of these new structures, the expenditures chargeable to power development should be added to the capital-investment item, and an interest charge paid thereon.

In the corporate powers provision should be included which will permit the corporation to purchase lands adjacent to its main structure or activity centers in order that:

1. The corporation may prevent unearned increment in land values from going to private land speculators, and thus secure for the corporation such added values as may be produced by its (or the Government's) expenditures, and
2. That the nature of adjacent development may be controlled in the interest of the public—preventing a reproduction of the shack slum communities

[13] This cost should be reduced by an amount proportionate to the excess cost resulting from the construction of these dams as work-relief projects.

which have erupted on the ground adjacent to Bonneville and Grand Coulee.

Construction.—In general, the existing construction agencies should be employed in the completion of dams now under construction and the building of new dams.

All dams which are not to be used for irrigation perhaps might be built under direction of the Corps of Engineers; other dams, by such agencies as the President may designate. In the construction of new dams to be used for the generation of power, and in installation of electric generating equipment at Bonneville and Grand Coulee, the major design features of such electric equipment ought to be determined solely by the corporation. General dam designs need to be coordinated for the multiple-uses involved: that is, water conservation, flood control, power, irrigation, navigation, fisheries, and perhaps other minor interests. This coordination of design should be done by a board representative of: The power corporation, the Corps of Engineers, the Bureau of Reclamation, the Federal Power Commission, the Bureau of Fisheries, and other interests that may be directly concerned.

Audit

The books of the corporation should be audited by commercial auditing firms set up for corporate auditing, rather than by the Comptroller General. That office should select auditing firms and write any additional specifications for the audit which it might feel necessary. In a business, accounting is a tool of management and it should not be unduly hampered by the rather different purposes which it serves for the usual Government bureau.

We have already indicated the unsuitability of applying the typical governmental accounting and auditing systems to an agency exercising corporate functions. The situation is aptly characterized by Dimock in the following:

> Government accounts merely show where money goes, primarily how it is spent; business accounts indicate the complete financial position of the corporation, emphasizing the profit and loss statement. Hence, the public commercial undertaking should be free to adopt the most modern accounting methods of private business. Moreover, the public corporation should secure its outside audit from a reputable firm of commercial auditors, just as do private corporations. These firms are better versed on the accounts and the operations of a public commercial undertaking than are the agents of the Comptroller-General's office. The latter's attention is confined almost entirely to spending departments which perform functions not of a commercial character; it is natural, therefore, that government auditors should be interested in honesty and legality to the almost complete exclusion of matters relating to efficiency. The commercial auditor, on the other hand, makes it his business to point out unbusinesslike or wasteful practices.[14]

Taxes

The principle that the corporation should pay taxes in the region comparable to those paid by private utilities should be incorporated in the law. How to give that principle best expression is a matter requiring further study. It seems doubtful if the percentage payment idea incorporated in the recent McNary-Steiwer bill [15] for the sale of Bonneville power is a correct application of that principle; neither does the provision in the T. V. A. Act realize this objective. It may be said that the simplest way is to place the property of the corporation used for the production and transmission of power upon the tax rolls of the counties in which they are located. But this would lead to disproportionate tax returns to the counties in which the large generating plants happen to be located. It might be advisable to allow the States to levy and collect a tax based upon the average rate paid by private electric utilities and on the same percentage of true value and leave the moneys thus produced to the State to apply as it may determine.[16]

Whatever the precise method used, the corporation should pay a general property tax comparable to those being paid by private electrical utilities. There is evidence to indicate that the Ontario Hydroelectric Commission would have been better off had its physical improvements, as well as its land, been subject to the usual taxes.

Control of Rates and Rate Policy

In giving the corporation power to fix the rates at which it will sell electric energy, it is quite important to endow it with the right to determine maximum rates for the different types of service in the resale of that power. This right of control over resale maximum rates should attach whenever any public or private distributing system buys all or a major portion of its energy from the Government corporation. Unless control over the rates to the ultimate consumer is provided, the fundamental objective of the Government enterprise may be defeated. That objective is to sell the maximum amount of power at the lowest economic price. The experience of the British grid shows that such an objective may be seriously jeopardized for

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[14] M. Dimock, "Government-operated enterprises in the Panama Canal Zone", pp. 206–207.

[15] Senate Bill S–3330, 74th Congress, 1st sess.

[16] One interesting suggestion is that cities and countries receive portions of this tax money based on the kilowatt-hours consumed within their borders.

want of such control. Under that system, costs of generating electric energy have been greatly reduced, as has the transmitting of the energy to distribution centers, but these reduced costs have not been passed along to the ultimate consumers. The result has been high profits for distributing companies, and a very slow increase in the per-capita consumption of electric energy. The Ontario experience, on the other hand, shows how consumption can be increased and rates reduced if the central agency controlling the grid may control resale rates in its wholesale contracts.

Maximum use also requires a blanket rate system over large areas feeding in and out of the grid system. This is the policy now pursued by the private utilities in the region. Power from the private generating plants in the Puget Sound country is now sold south to the Columbia River at the same rate as is charged in and near Seattle. One of the new generating stations of the Puget Sound Power & Light Co. is at Rock Island, on the Columbia, not far south of Grand Coulee and nearly as far from Puget Sound as the new Federal plant. Power is now transmitted that long distance and sold at the same rate as energy produced within the region of consumption.

Priorities in Sale of Power

The provisions in section 10 of the Tennessee Valley Authority Act which set forth the priority rules to govern the sale of surplus power not used in the operations of Federal works ought to be embodied in the act creating the corporation we are proposing. These read as follows:

> . . . the board is authorized to enter into contracts for such sale for a term not exceeding 20 years, and in the sale of such current by the board it shall give preference to States, counties, municipalities, and cooperative organizations of citizens or farmers, not organized or doing business for profit, but primarily for the purpose of supplying electricity to its own citizens or members: *Provided*, That all contracts made with private companies or individuals for the sale of power, which power is to be resold for a profit, shall contain a provision authorizing the board to cancel said contract upon 5 years' notice in writing, if the board needs said power to supply the demands of States, counties, or municipalities.

The Superpower System as a Common Carrier of Electrical Energy

It is proposed, in a memorandum prepared by Charles E. Carey and James C. Rettie, members of the research staff of the Columbia Basin study, that the high-tension transmission system and certain of the intermediate lines might be organized as a system of common carriers of electrical energy. The proposed corporation might furnish transmission service to any private company or municipality which wished to transport blocks of power over long distances. In like manner the corporation might be empowered to arrange for a similar service to be rendered to it by the companies which own lines suitable for the transmission of power at intermediate voltages. For this kind of service an at-cost charge would be made. The technical operation of such a carrier system might resemble that which is now employed in the transport of oil and gas by the pipe-line companies. While this is a new conception as applied to the transportation of electric energy, it might solve some of the difficulties which will arise in trying to bring about a reasonable degree of economic harmony between the various electric utilities which will be serving the region. The writer feels that the directors of the corporation should be free to examine the feasibility of this proposal and put it into operation, if it seemed desirable to do so.

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